

**Juneau, Alaska, Wind Hazard  
Information System (WHIS):  
A Wintertime Assessment of  
Wind Sensors on Mt. Washington,  
New Hampshire**

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March 2000

DOT/FAA/CT-TN00/05

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<b>16. Abstract</b> <p>The Federal Aviation Administration (FAA) Weather Branch performed a 6-week wintertime assessment of wind sensors on Mt. Washington, NH, in 1999. The purpose of the effort was to perform a preliminary investigation of the severe weather performance capabilities of anemometers for use in the prototype Wind Hazard Information System (WHIS) at Juneau International Airport, AK. The test site was selected as it is subjected to extreme meteorological and climatic conditions equivalent to alpine and arctic zones characteristic to Juneau. The summit weather is severe and often experiences snow and icing conditions, and the buildup of rime ice on exposed surfaces is prevalent and often substantial. One ultrasonic and two mechanical wind sensors, all with internal heater capabilities, were studied. Other instruments included an ice detector, a relative humidity probe, and an Internet-capable video camera which was set up to continuously monitor temperature/weather and sensor conditions. Additional equipment consisted of a datalogger, a personal computer (PC), and various communications equipment located in a heated instrument shelter. About 37 days of data were remotely collected, downloaded, and analyzed. Figures are presented in this report to document and present the test bed setup, data collection, and analysis results.</p> <p>This effort was considered primarily a demonstration and shakedown effort, as a number of limitations were necessary and understood before the test bed installation. The most severe limitation was problems encountered with the video camera. Despite the test bed difficulties, a sufficient amount of useful data was successfully analyzed to draw some conclusions on the adequacy of the test bed setup and the performance of the wind sensors. Results show several effects of snow and icing on wind sensor performance. One wind direction mechanical sensor failed early in the study due to heater-related problems. The ultrasonic sensor experienced a significant amount of data outages, and was unavailable 9 percent of the time. The failures are highly correlated to snow conditions. Other data suggests the buildup of ice on the mast of the mechanical sensors is significant and affects sensor performance. Several test setup and data collection recommendations are provided in support of a proposed larger scale effort.</p>					
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## EXECUTIVE SUMMARY

The Weather Branch (ACT-320) of the Federal Aviation Administration (FAA) William J. Hughes Technical Center performed a 6-week wintertime assessment of several wind sensors on Mt. Washington, NH, in February and March of 1999. The purpose of the effort was to perform a preliminary investigation of the severe weather performance capabilities of the anemometers currently used in the prototype Wind Hazard Information System (WHIS) at Juneau International Airport, AK. A sonic wind sensor considered as a possible candidate for use in the WHIS was also tested. The test bed is located near the Mt. Washington Observatory (MWO) at the summit. The site was selected as it is subjected to extreme meteorological and climatic conditions equivalent to alpine and arctic zones characteristic to Juneau. The summit weather is severe and often experiences snow and icing conditions, and the buildup of rime ice on exposed surfaces is prevalent and often substantial.

The test bed consisted of one ultrasonic and two mechanical wind sensors. All sensors had internal heater capabilities. Other weather instrumentation included an ice detection sensor and a temperature/relative humidity probe. An Internet-capable video camera was set up to continuously monitor weather and sensor conditions. Additional instrumentation and equipment consisted of a datalogger, a personal computer (PC), and various communications equipment located in a heated instrument shelter. The test bed was completely unattended during the 6-week period. The PC served as an Internet web site and data server to provide on-line monitoring of sensor performance and live video images of the test bed. About 37 days of test bed data were remotely collected, downloaded, and analyzed. Hourly surface weather observations from MWO were separately collected. A custom set of data reduction and analysis tools were developed. The tools included a Fortran program developed to perform the bulk of the data reduction and analysis. The output of the program consists of continuous time series of sensor data and computed variables generated at ~10-s intervals. Hourly summaries of the data including mean and standard deviation values were also produced. The above data were also merged and compared with the surface weather observations. Figures are presented in this report to document and present the test bed setup, data, and analysis results.

This effort was considered primarily a demonstration and shakedown effort, as a number of assumptions and limitations were necessary and understood before the test bed installation. The most severe limitation on data collection and analysis resulted from problems encountered with obtaining and installing the video camera, and with the camera operation itself. Despite this and other difficulties encountered, a sufficient amount of useful data was successfully collected and analyzed to draw some conclusions on the adequacy of the test bed setup and the performance of the wind sensors. Results show several effects of snow and icing on wind sensor performance. One of the wind direction mechanical sensors failed early in the study due to heater-related bearing problems. The ultrasonic anemometer experienced a significant amount of data outages, and was unavailable 9 percent of the time. The failures are highly correlated to snow conditions. Other data suggests that the buildup of ice on the mast of the mechanical sensors is significant and affects the sensor performance. Several test bed setup and data collection recommendations are provided in support of a proposed larger scale effort.

## 1. INTRODUCTION.

The Weather Branch (ACT-320) of the Federal Aviation Administration (FAA) William J. Hughes Technical Center performed an informal field test and assessment of several anemometers located on Mt. Washington, New Hampshire, in February and March of 1999. The purpose of the effort was to perform a preliminary investigation of the severe weather performance capabilities of the anemometers currently used in the prototype Wind Hazard Information System (WHIS) at Juneau International Airport, AK, and the severe weather performance of other candidate wind sensors.

As background, this effort is part of a much broader feasibility study for the development and implementation of a prototype Wind Hazard Detection and Warning System for Juneau Airport in Juneau, Alaska. As envisioned, the end-state system would provide turbulence detection and warnings customized to the airport's challenging terrain. Mountains and rugged terrain around Juneau Airport restrict flight paths and can create complex and turbulent wind-flow patterns. To reduce the risk of aircraft encountering severe turbulence, the FAA currently requires that two major departure routes at Juneau be closed to Part 121 commercial aircraft whenever the centerfield and/or three anemometers on nearby mountains exceed FAA Operations Specifications for Part 121 air carrier operations in Juneau [1]. The WHIS, and the detection and warning system if implemented, will incorporate current guidelines in their respective Operations Specifications to maximize use of Juneau's turning-departure routes and support overall airport operational decisions.

Development of the WHIS is being conducted by the National Center for Atmospheric Research (NCAR), through the Turbulence Product Development Team (PDT) of the FAA Aviation Weather Research (AWR) program. Data gathering and analysis at Juneau is being performed by NCAR using a deployed array of sensors which include the centerfield and mountaintop anemometers currently employed in Part 121 Operations. The AWR Program is managed under AUA-430, which provides funding for and directs research related to weather phenomena affecting all phases of aviation. The purpose of the AWR program is to identify and develop weather-related science and technology which will improve safety as well as increase capacity. Funded activities range from basic research in various phenomena to prototype systems and products designed for both FAA and aviation industry users. The Weather Branch (ACT-320) is located at the Technical Center in Atlantic City, New Jersey, and provides continuous support to AUA-430 in this effort. The primary roles of ACT-320 include user needs assessments, conduct/oversight of demonstrations and evaluations, and meteorological assessments. Additional support in this effort includes requirements determination as well as engineering, and test and evaluation.

### 1.1 PURPOSE OF REPORT.

This report provides results of the test bed demonstration and preliminary assessment of sensor performance in support of selecting and maintaining wind sensors for the Juneau Airport prototype WHIS. The report documents the test bed setup, data collection, and analysis activities related to the demonstration and assessment.



## 1.2 SCOPE OF REPORT.

This report has been written and formatted in accordance with the FAA Test and Evaluation Process Guidelines [2]. The test guidelines have been tailored to account for this demonstration and assessment type activity. The body of this report contains a description of the test bed setup, sensors, test method, and data collection and analysis activities. Data analysis results and summaries are provided in the figures and appendix A at the end of this report. Discussion, conclusions, and recommendations based on results of the test bed and sensor performance are also provided. Detailed test bed data and plots are contained in appendices B and C and are provided as separate file attachments for electronic copies.

## 2. REFERENCE DOCUMENTS.

This section contains a list of all reference documents used in the development of this test report.

1. FAA Operations Specifications for Alaska Airlines Operations in Juneau, AK, C64, Effective 21 April 1998.
2. FAA Acquisition Management System (AMS) Test and Evaluation Process Guidelines, Content and Format of Operational Test (OT) Reports, appendix C-3, February 1999.
3. Mt. Washington Observatory, Home Page, <http://www.mountwashington.org>.
4. Mt. Washington and the Presidential Range Topographic Map, Scale 1:20,000, Appalachian Mountain Club, Boston, MA, ISBN 0-910146-97-7, Revised June 1989.
5. Handar Model 425 Series of Ultrasonic Wind Sensors, User's Guide, version 1.6, Sunnyvale, CA, July 1998.
6. Rosemount Model 871FA Ice Detector, Product Data Sheet 2239, Rosemount Inc., Minneapolis, MN, November 1977.
7. US Weather Net, Home Page, <http://www.uswx.com/wx/us/nh/KMWN>.

## 3. SYSTEM DESCRIPTION.

### 3.1 TEST SITE AND TEST BED LOCATION.

The test site is situated near the Mt. Washington Observatory [3], which is located on the summit of Mt. Washington in New Hampshire. The geographical summit has an elevation of 1917 meter (m) (6,288 feet) and is the highest point in the northeastern United States. The Observatory is a research facility which specializes in the conduct of scientific research and engineering test programs for the design, development, and testing of robust meteorological instrumentation. The most important feature of the facility is its unique location, which is subject to extremes of meteorological and climatic conditions equivalent to alpine and arctic zones such as Juneau, Alaska. The location and conditions provide the ideal natural test bed for assessing the severe weather performance of meteorological instrumentation. Snow and icing conditions are common on Mt. Washington from early fall through spring. The buildup of rime

ice on exposed surfaces is prevalent and often substantial. Based on the 43-year interval from 1935–78, the mean annual snowfall was 6.3 m (248 inches (in)). For some part of the day, the summit is in clouds or fog, at least 300 days out of the year. The lowest recorded temperature was  $-44^{\circ}\text{C}$  ( $-47^{\circ}\text{F}$ ) and the mean hourly wind speed is 35.1 miles per hour (mph). Wind gusts exceeding  $45\text{ m}\cdot\text{s}^{-1}$  (100 mph) are frequent in winter and early spring. The highest wind velocity ever recorded anywhere in the world was 103 meters per second ( $\text{m}\cdot\text{s}^{-1}$ ) (231 mph) which was measured at the Observatory.

The sensor test bed location is approximately 340 m (1125 feet) and  $9^{\circ}$  north of the summit. It is on the north slope, and about 67 m (220 feet) below the summit. As a result, it has excellent exposure for winds from all directions, especially for the large northwest sector extending southwest through northeast. A topographic map [4] showing the location of the test bed with respect to the summit and Mt. Washington Observatory is shown in figure 1.

### 3.2 SENSORS.

The array of four mechanical wind sensors and an ultrasonic anemometer were mounted at a height of 2.6 m (8.6 feet) above ground on a  $\sim 13.7\text{ m}$  (45-foot (ft)) horizontal steel I-beam oriented in a generally northeast/southwest direction. Supplementary weather instrumentation and equipment included a temperature and relative humidity probe, an ice detection sensor, a video camera, a datalogger, a personal computer (PC), and various communications equipment. Electrical power and data communications were supplied from a heated instrument shelter located  $\sim 30\text{ m}$  (100 feet) southeast from the sensors. Schematic diagrams showing elevation and plan views of the test bed setup and instrumentation are shown in figures 2 and 3, respectively. Photographs of the test bed and sensors are shown from varying views in figures 4 and 5. The photographs in figure 6 show views of the test bed with respect to the Observatory.

Two pairs of Hydro-Tech mechanical wind sensors manufactured by Taylor Scientific Engineering were installed. Each pair consisted of an individual Model WS-3 Heated Rotor Anemometer and a separate Model WD-3 Heated Direction Vane. The sensors are particularly designed for rugged applications and are electrically heated and temperature controlled. Each has a 2000-watt (W) heater, which is approximately 33 percent more than the standard production models currently in use in Juneau, AK. Photographs of the rotor anemometer and the direction vane are shown in figure 7.

A modified Handar Model 425AH ultrasonic anemometer was also installed for testing. Production units of the 425AH have thermostatically controlled transducer heads with a total heat output of about 30 W. The modified unit, as shown in figure 8, has additional heating elements covering the sensor body and transducer arms, and consumes approximately 240 W. The sensor was mounted without the bird spikes installed. It has an integrated microprocessor that acquires and processes wind data, and performs serial data communications. The array of three equally spaced ultrasonic transducers in a horizontal plane measures the transit time for sound to travel from one transducer to another. The transit time depends on the wind velocity along the sonic path. Unreliable readings, which may occur when large raindrops or ice pellets hit a transducer, are eliminated by an internal signal processing technique [5]. The version of firmware used in the unit tested was version 2.03.

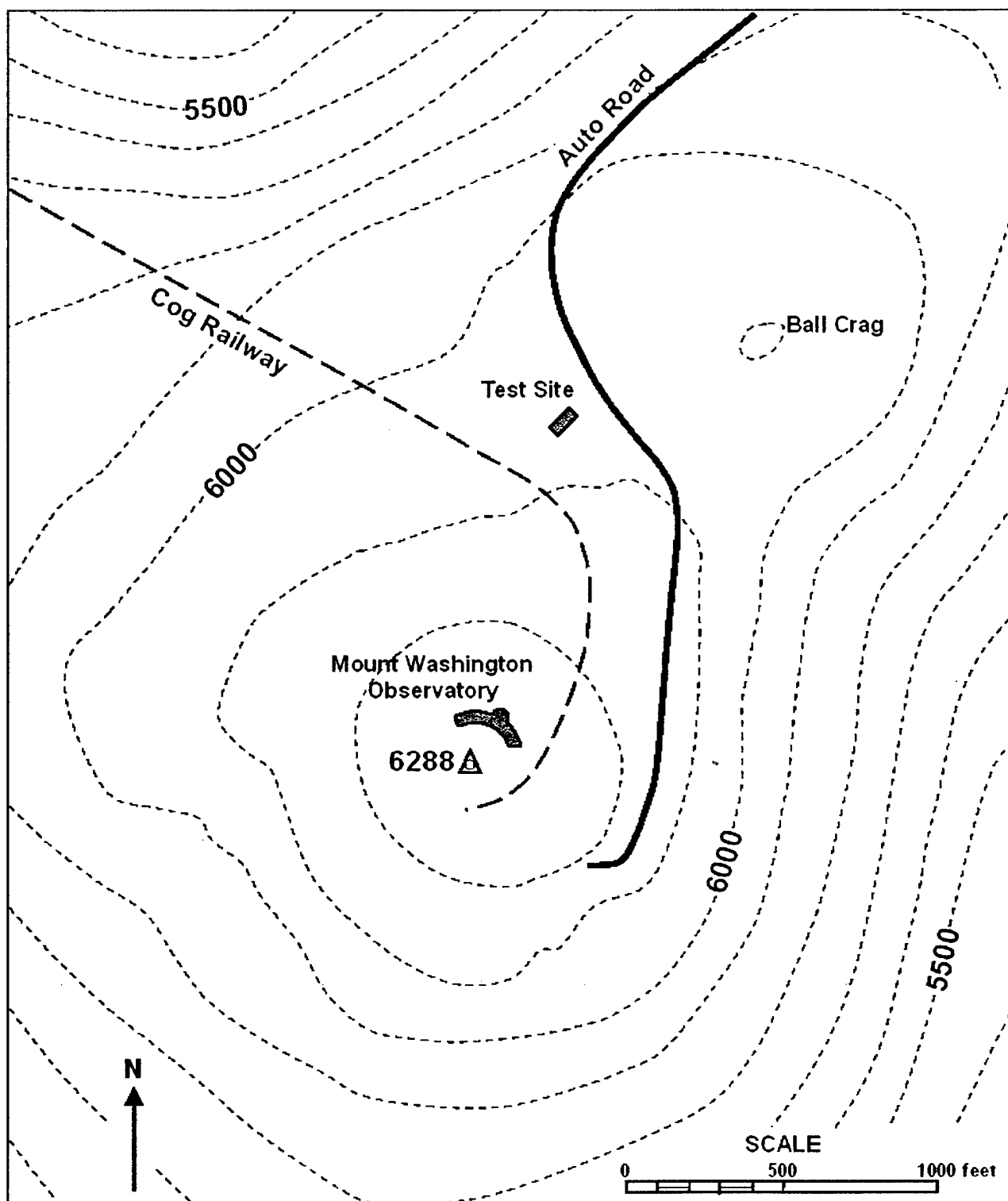


FIGURE 1. SITE MAP WITH TEST SITE

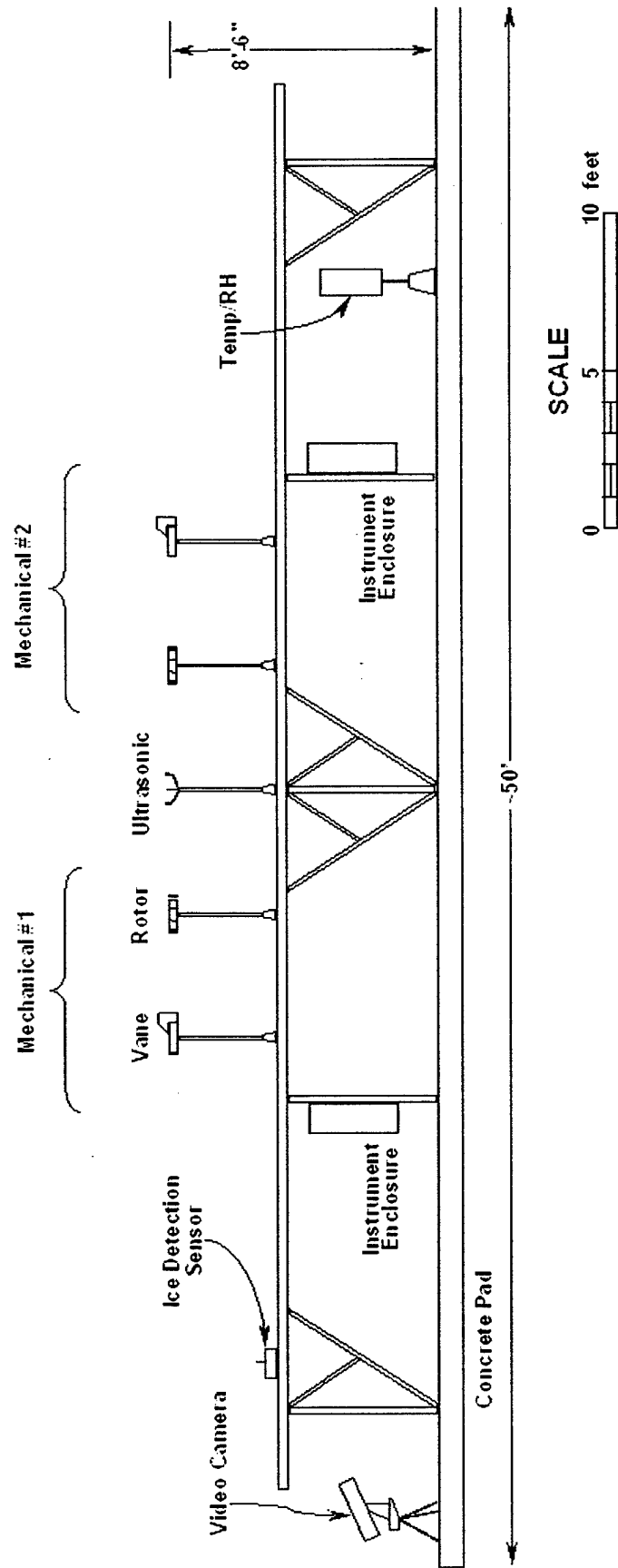


FIGURE 2. SCHEMATIC ELEVATION VIEW OF TEST BED AND SENSORS

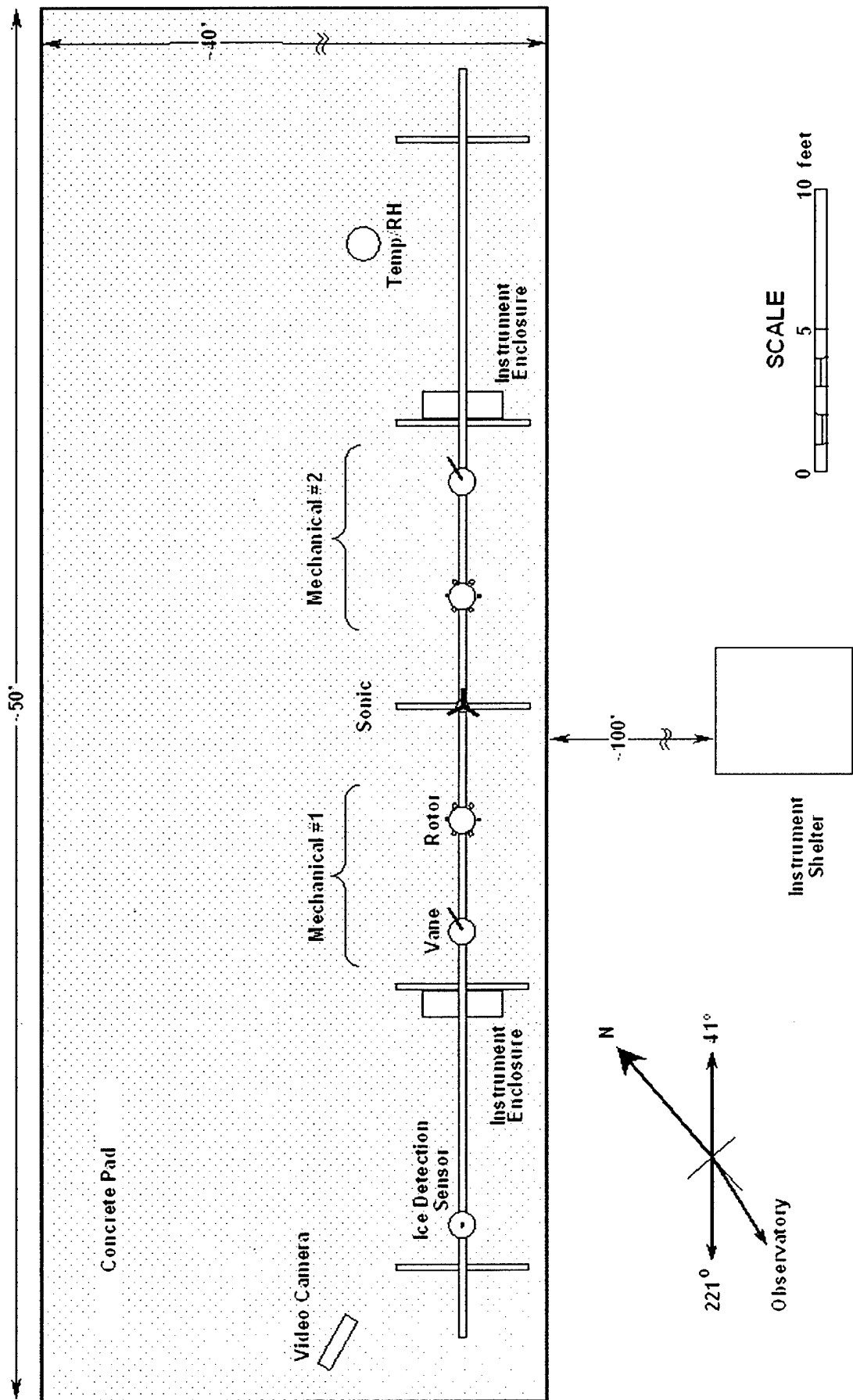
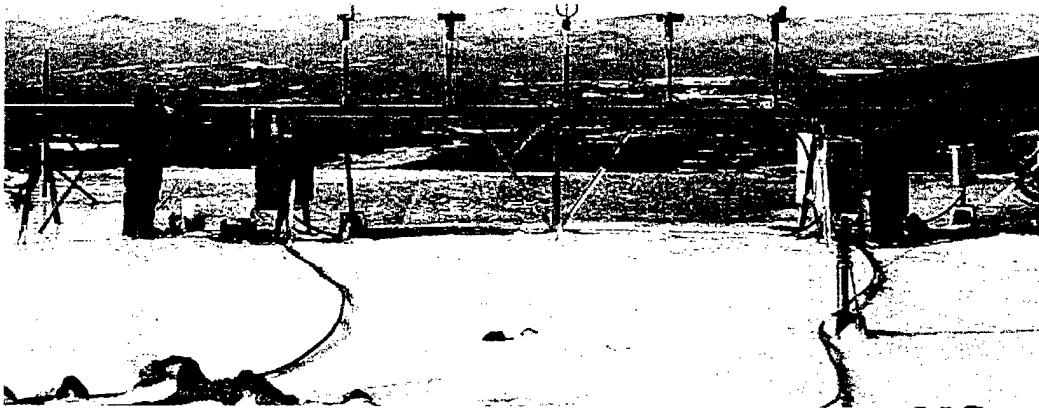


FIGURE 3. SCHEMATIC PLAN VIEW OF TEST BED AND SENSORS

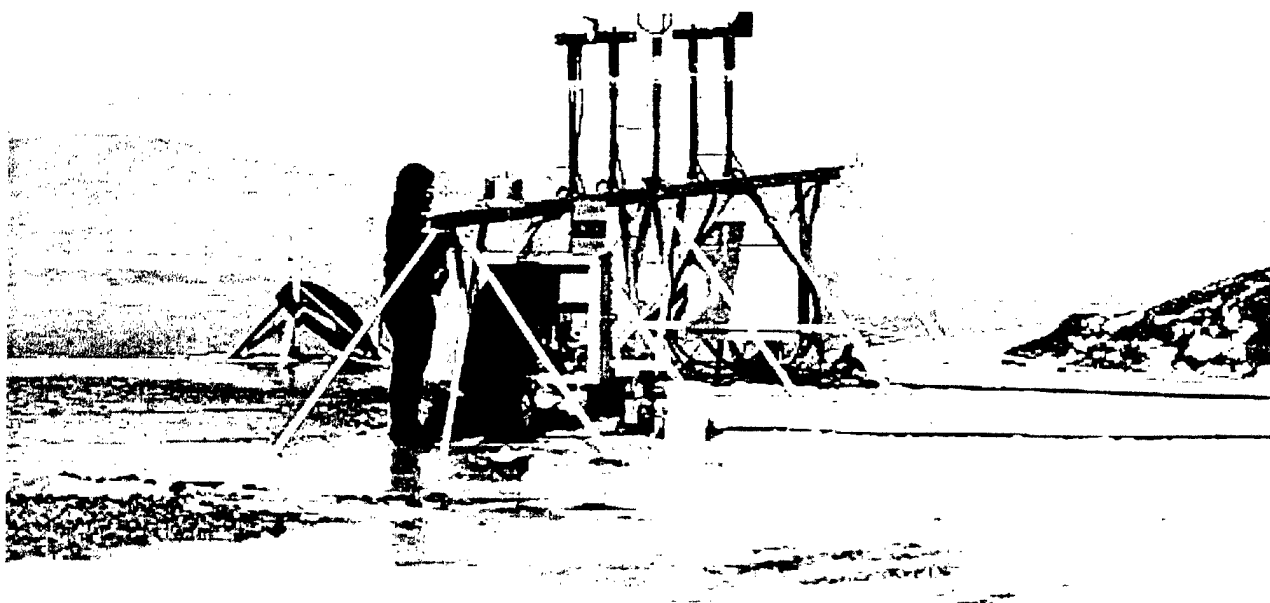


(a)

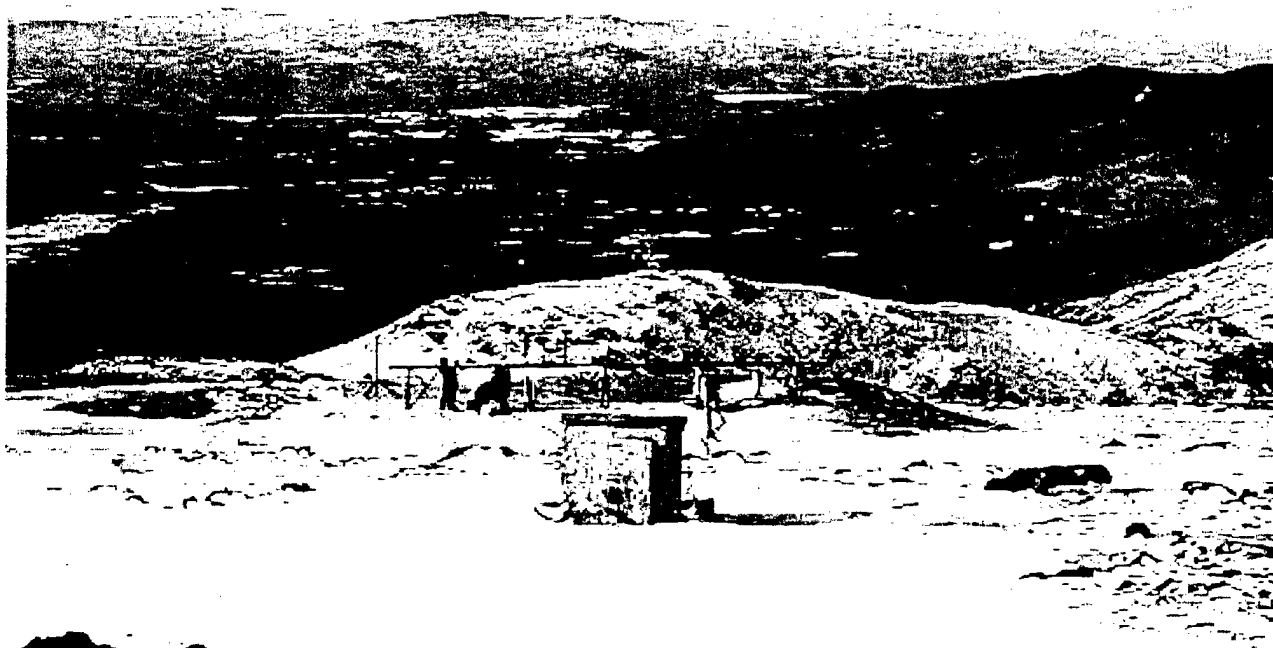


(b)

FIGURE 4. VIEWS OF SENSORS LOOKING NORTHWEST (a), AND NORTH (b)



(a)

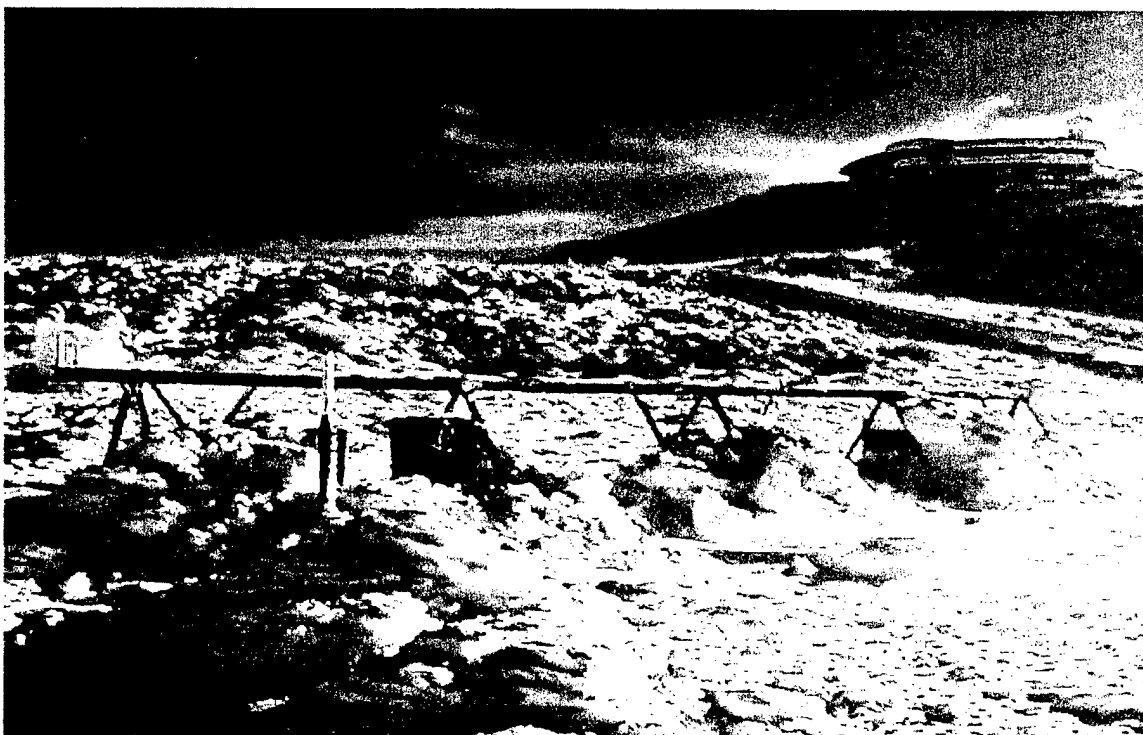


(b)

FIGURE 5. VIEW OF SENSORS LOOKING NORTH (a), AND TEST BED AND SHELTER LOOKING NORTHWEST (b)



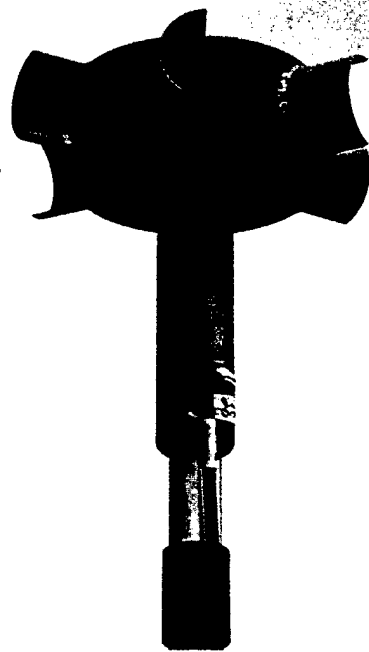
(a)



(b)

FIGURE 6. VIEWS OF THE TEST BED AND OBSERVATORY (a), AND TEST BED IN SNOW CONDITIONS (b)





(a)



(b)

FIGURE 7. MECHANICAL WIND SENSOR ROTOR (a), AND DIRECTION VANE (b)

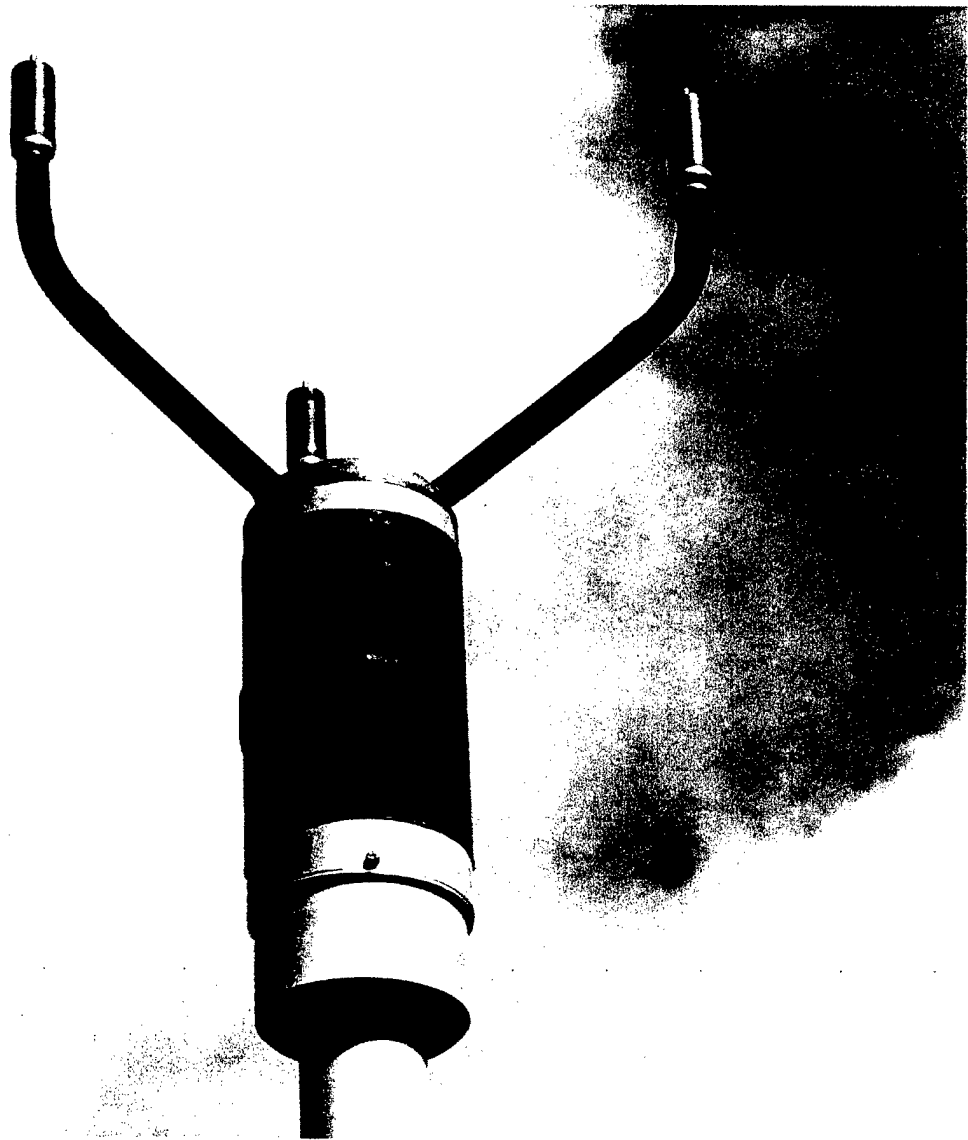


FIGURE 8. ULTRASONIC ANEMOMETER

### 3.3 OTHER INSTRUMENTS.

To provide an automated means of detecting icing conditions, a Rosemount Model 871FA Ice Detector [6] was installed at the test site. Because the sensor is designed for installation through the skin of an aircraft, a special metal housing was fabricated to mount and protect the sensor body. A photograph of the sensor and the housing is shown in figure 9. The sensor measures the amount of ice mass accumulation on a cylindrical metal probe. The probe is vibrated at a natural resonance frequency of 40 kilohertz (kHz). As ice accretes, the frequency of the vibration decreases. Once a preset amount of ice mass has accumulated, the cylinder heater is activated to melt and remove the ice. A nominal time history of the probe output voltage based on its operating principles is shown in figure 10. The figure shows the voltage increasing with ice accumulation, and then dropping to its threshold value as the heater is activated to remove the ice. The standard trip point is 0.5 millimeter (mm) (0.020 in) ice thickness with an accuracy of about  $\pm 25$  percent.

Air temperature and relative humidity were measured by a Campbell Scientific HMP45C integrated temperature and relative humidity probe manufactured by Vaisala, Inc. The probe consists of a platinum resistance thermometer and capacitive-type relative humidity sensor housed directly in a 12-plate Gill solar radiation shield. The temperature measurement range and accuracy is  $-39$  to  $+60^{\circ}\text{C}$ , and  $\leq \pm 0.5^{\circ}\text{C}$ , respectively. Relative humidity field accuracy at  $20^{\circ}\text{C}$  is  $\leq \pm 3$  percent over the full RH range of 0–100 percent. To prevent the buildup of snow and ice directly on the sensor, the unit was mounted in a specially fabricated aluminum canister with top and bottom ventilation. The open bottom of the canister was situated about 0.5 m (1.5 feet) above ground. A photograph of the enclosure is shown in figure 11.

A Pelco PT780 series panning and tilting video camera with preset positioning capabilities was set up to provide real-time visual monitoring and recording of the rime icing on the sensors. The camera enclosure has a heater and pressurized dry nitrogen system to prevent icing and condensation buildup on the camera lens. The camera was connected via unshielded coaxial cable to the LRD41C video receiver and drive controller unit located in the instrument shelter. A photograph of the video camera is shown in figure 12. Unfortunately, difficulties were encountered with acquiring and installing the camera which severely limited its usefulness for the data collection effort. The camera was received from the manufacturer in damaged condition and was not available for testing and burn-in prior to the installation on Mt. Washington. In addition, the test bed camera mount, which was to be manufactured by Mt. Washington personnel, was not complete at the time of installation of the other equipment. Difficulties in coordinating a subsequent installation of the camera by Observatory personnel further delayed use of the camera. When the camera was finally installed by Observatory personnel, the lenses became fogged, rendering the video useless. The fogging should not have occurred since the camera was supposedly pressurized with dry nitrogen. As a result of the numerous problems encountered, video images of the test bed and sensors were not available. This proved to be the most serious setback in data collection, because it prevented correlation of sensor performance with a real-time assessment of weather conditions.

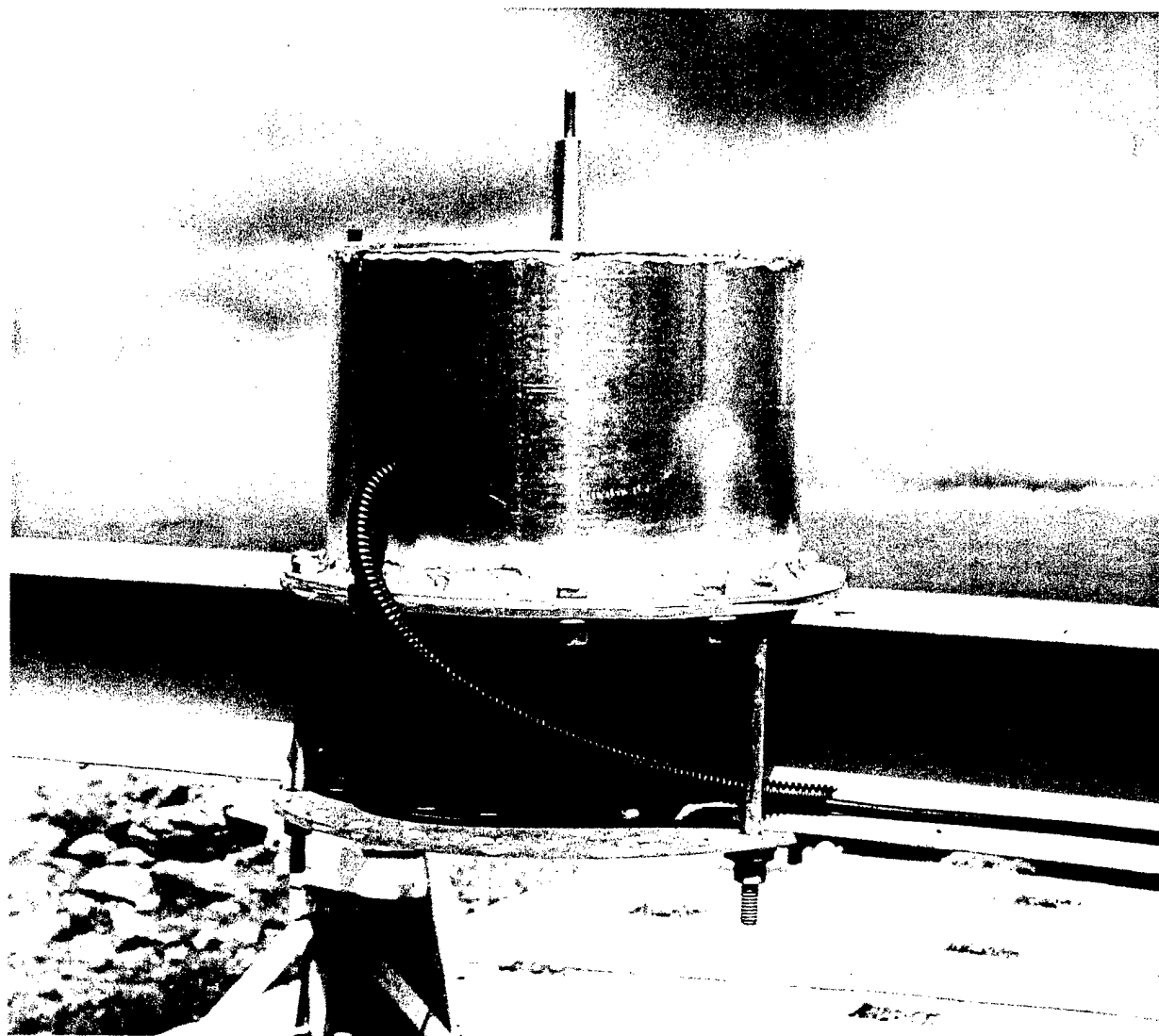


FIGURE 9. ICE DETECTION SENSOR

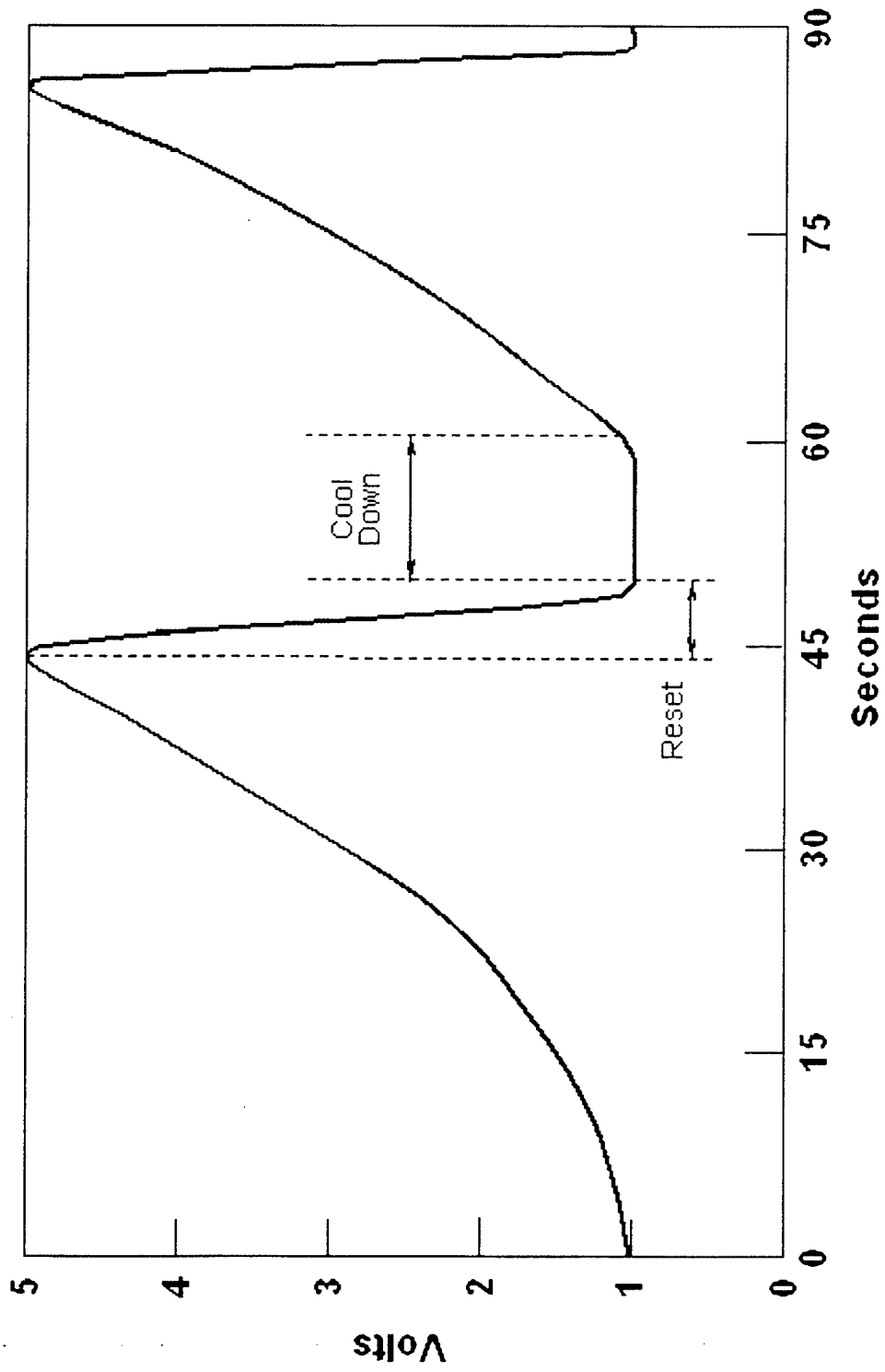


FIGURE 10. NOMINAL ICE DETECTION SENSOR RESPONSE

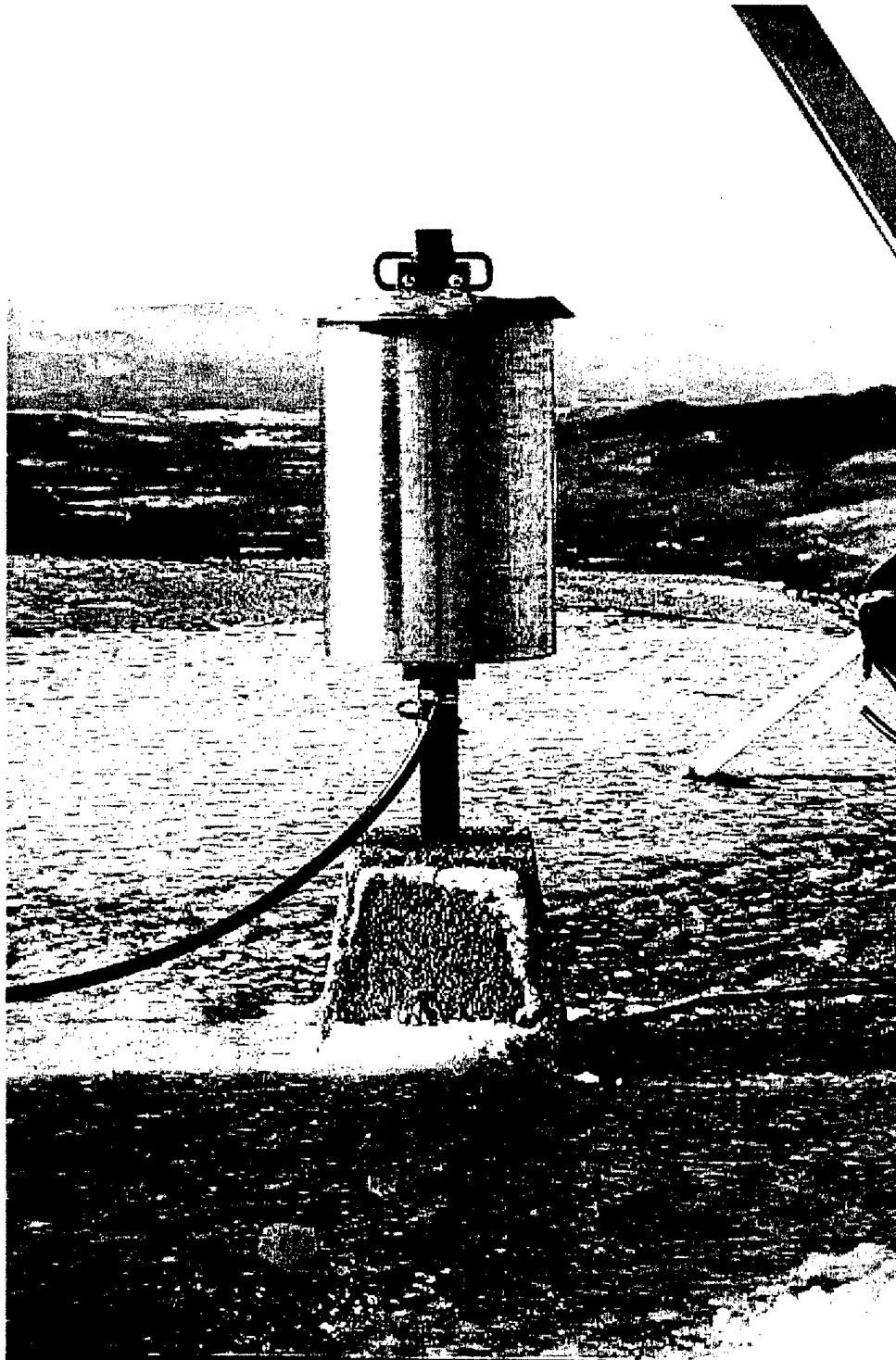


FIGURE 11. TEMPERATURE AND RELATIVE HUMIDITY ENCLOSURE

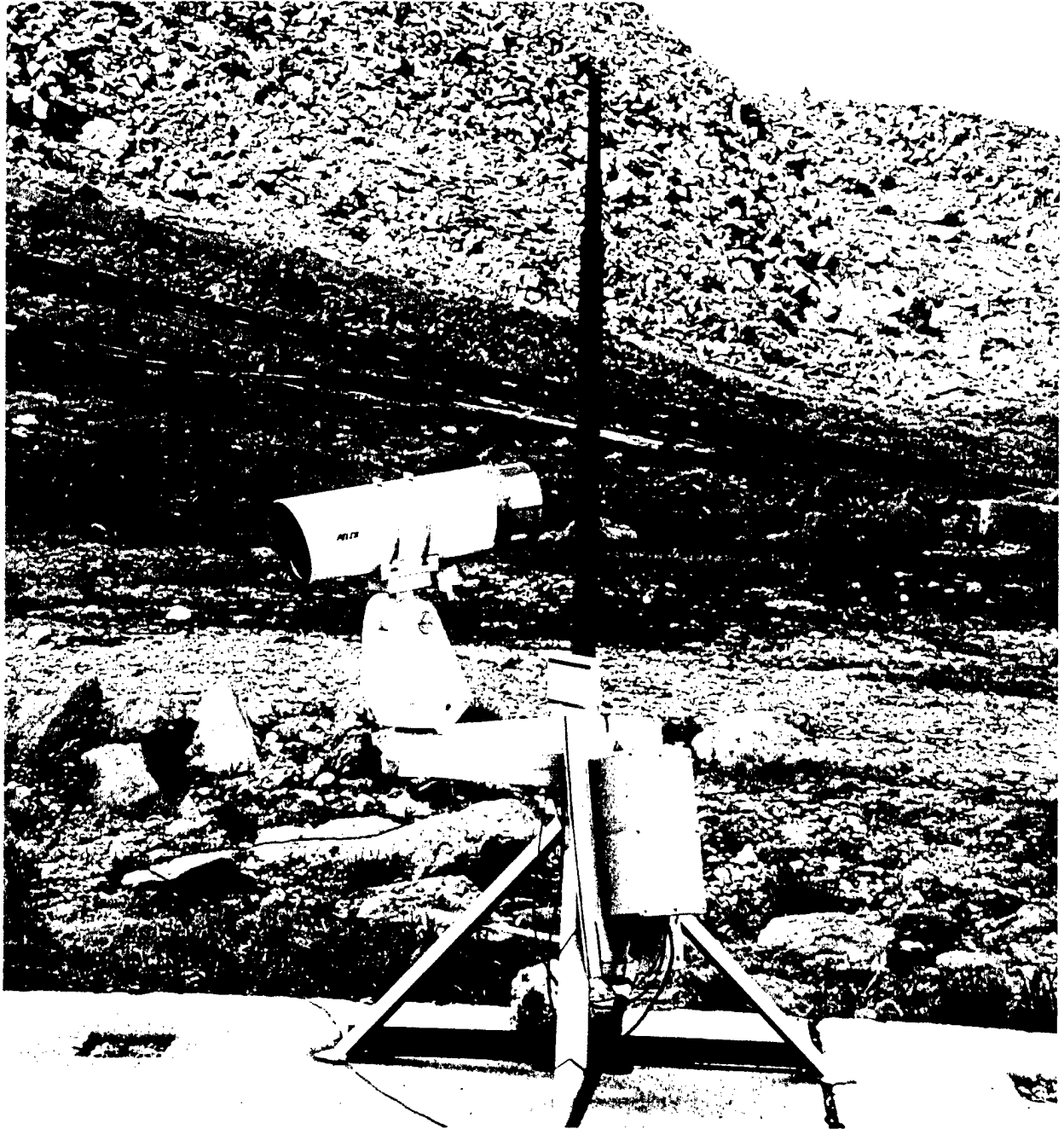


FIGURE 12. VIDEO CAMERA

### 3.4 DATA ACQUISITION.

The test bed was designed and set up for complete unattended operation and maintenance during the test period. Data acquisition from the weather sensors was accomplished either directly, or via a Campbell Scientific Model CR23X Micrologger which was located in the environmental enclosure on the instrument-mounting fixture. Photographs of the two environmental enclosures are provided in figure 13. The datalogger supplied data to a Windows NT-based PC located in the heated shelter. The nominal sampling and recording rates for the ultrasonic sensor and the balance of other sensors were 1 and 10 seconds (s), respectively.

A block diagram showing data collection is furnished in figure 14. The PC performed the data recording, and was connected to the Observatory via a 10 BaseT connection using Internet Protocol. The test bed PC was assigned an Internet Protocol (IP) address, and set up as an Internet web and File Transfer Protocol (FTP) server to facilitate remote monitoring, control, and collection of test bed data. The test bed web server also supplied live video camera images and on-line analysis tools in order to provide continuous monitoring and evaluation of sensor data. Pictures of the web site with on-line analysis and camera frame features are shown in figures 15 and 16.

## 4. TEST AND EVALUATION DESCRIPTION.

### 4.1 TEST OBJECTIVES/CRITERIA.

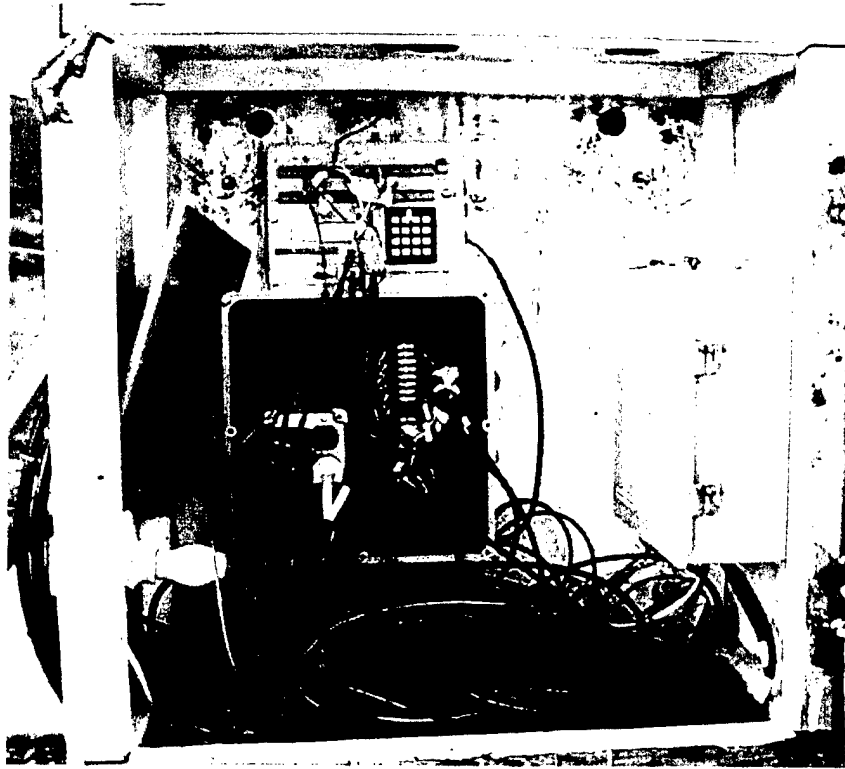
The objective of the study was to evaluate the effects of icing and snow on the performance of the wind sensors. A secondary objective was to design and develop an unattended sensor test bed for use in future tests on Mt. Washington.

### 4.2 TESTING DESCRIPTION.

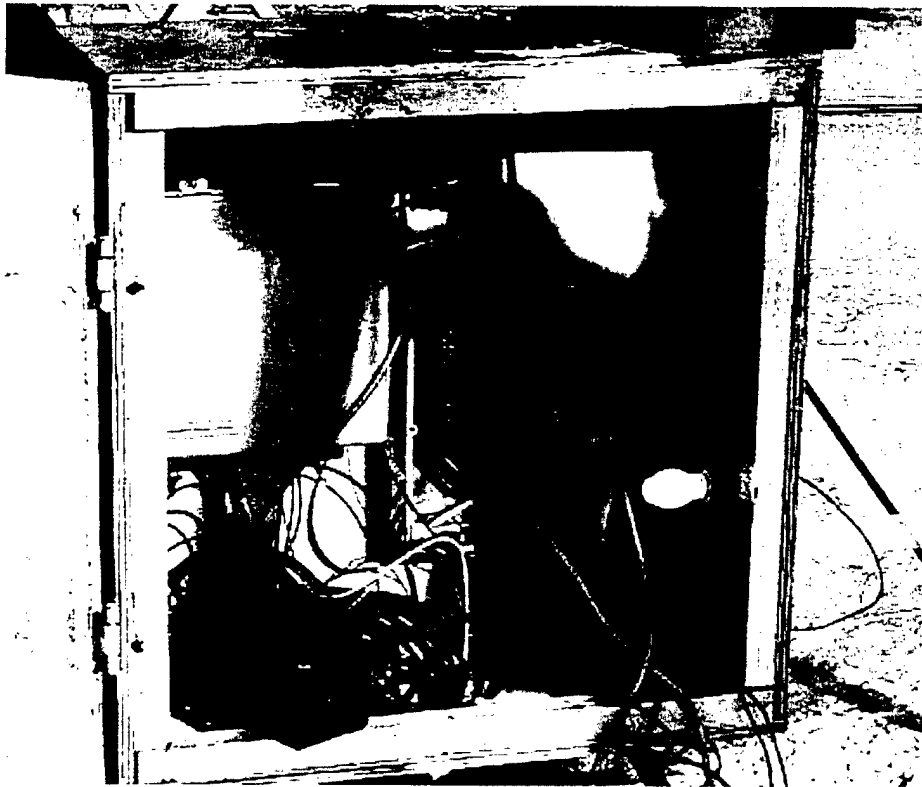
Original plans called for testing over a 3-month period, but difficulties with the data collection suite limited the period of useful data collection. Consequently, the evaluation consisted of a single 6-week activity for assessing wind sensor performance. No particular subtests were performed or critical test issues considered. Test bed setup and installation of the sensors and instrumentation took place on Mt. Washington the week of February 8, 1999, under unfavorable weather conditions. Initial data collection began on February 12, 1999, with full data collection taking place from February 19, 1999, to the end of the effort on March 21, 1999. The test bed was dismantled on June 17, 1999.

Sensors utilized in the test were installed as received from the manufacturers and other organizations. Special mounting enclosures were designed and fabricated for the ice detection sensor and the temperature and relative humidity probe. No specific calibration procedures were performed, and the azimuth alignment of the wind sensors was estimated by means of a compass and visual inspection. As previously mentioned, the deployment of the camera was plagued with numerous difficulties, and very little useful video data was acquired. The test bed data was monitored remotely and by ACT-320 at the Technical Center. Data transfer was accomplished





(a)



(b)

FIGURE 13. DATALOGGER INSTRUMENT ENCLOSURE (a), AND OTHER INSTRUMENT ENCLOSURE (b)

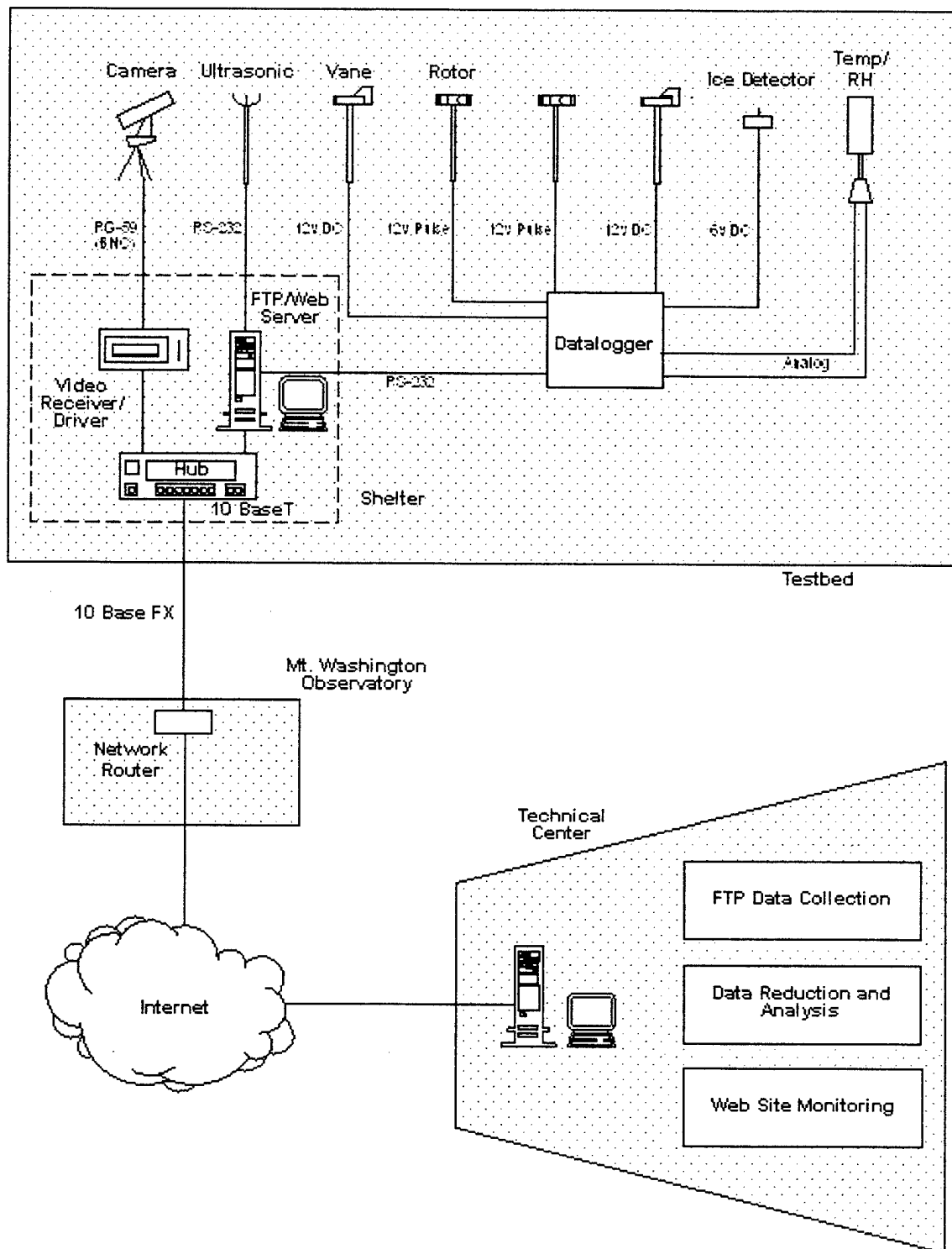


FIGURE 14. DATA COLLECTION AND PROCESSING BLOCK DIAGRAM

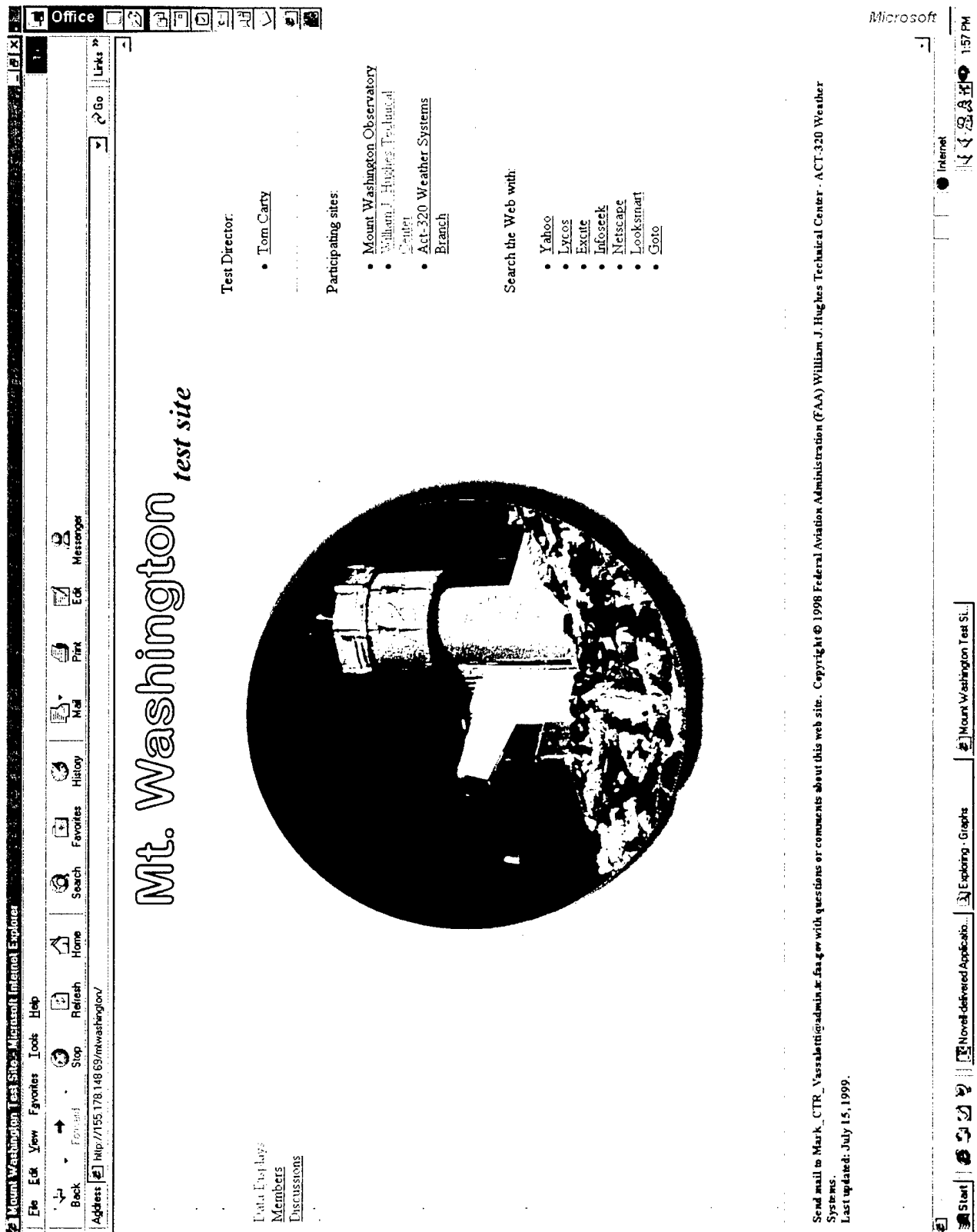


FIGURE 15. TEST SITE MAIN WEB PAGE

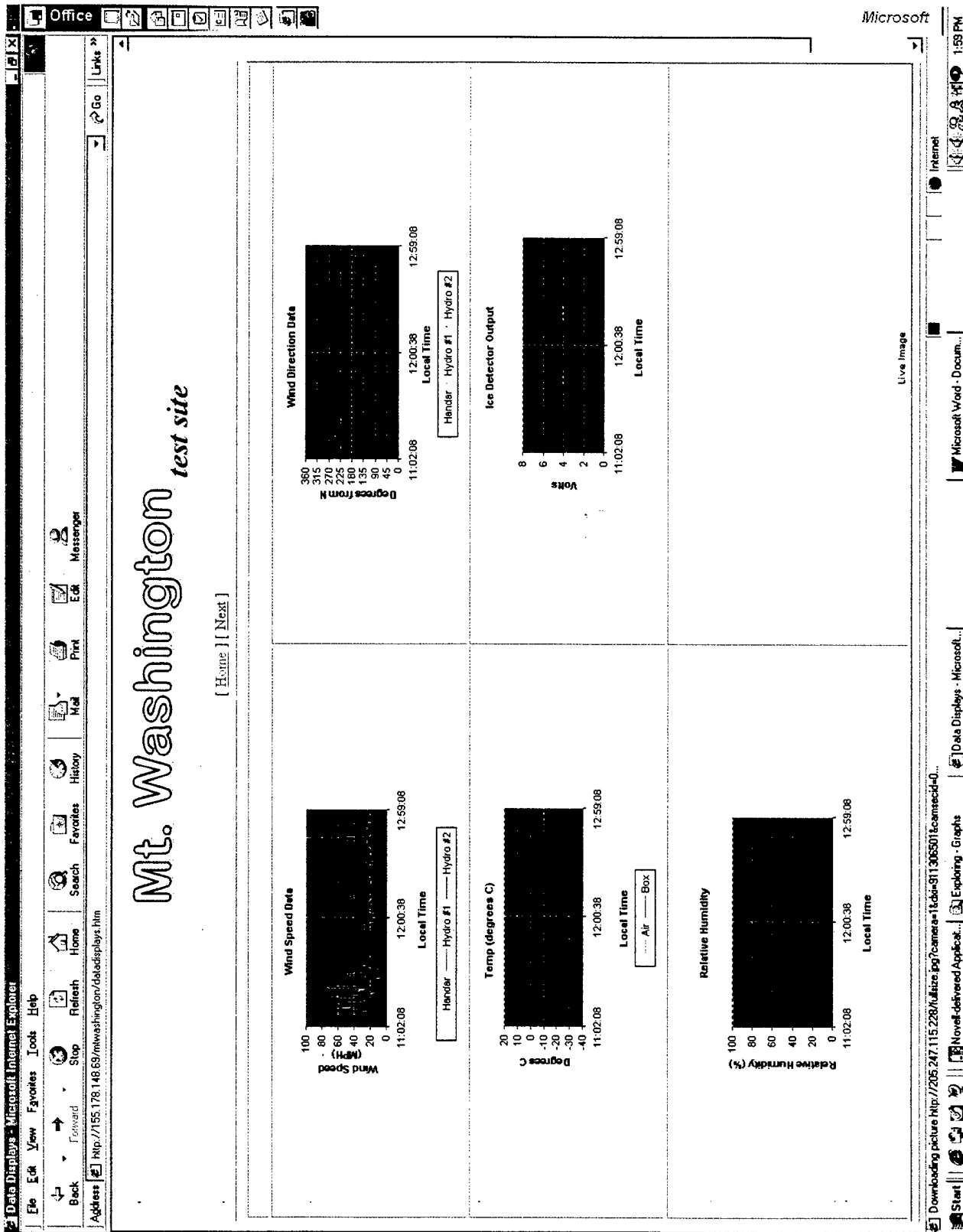


FIGURE 16. TEST SITE SENSOR DISPLAY WEB PAGE

via the Internet by accessing the test bed server and on-line data analysis tool. Data files were downloaded on a daily basis for later data reduction and analysis.

### 4.3 DATA COLLECTION AND ANALYSIS METHOD.

#### 4.3.1 Data Recording.

Data collection was performed continuously with two data files being created and stored for each day. Data files were remotely retrieved from the test bed on a daily basis via the Internet using FTP. Approximately 37 days of test bed data were collected. Each day of data is comprised of two separate files. One file consists of the mechanical wind sensor data along with the other meteorological data, and the other file consists of the sonic anemometer data. The formats of these source files are provided in figures 17 and 18, respectively. In addition to the test bed data, hourly Aviation Routine Weather Report (METARs) routinely reported by the Observatory were separately collected through an archive source [7] via the Internet.

#### 4.3.2 Data Reduction.

All recorded data was remotely downloaded to the Technical Center for analysis. A custom set of Digital Visual Fortran 95 software routines were developed to perform the bulk of the test bed data reduction and analysis. The programs perform full data decoding, and implement a variety of data quality analysis and normalization routines. Several conventional meteorological wind conversion and rectification techniques were also incorporated. Two types of output are provided by the program. The first is hourly mean and standard deviation values of the observed and computed weather parameters, along with a collection of corresponding hourly surface observations from the Observatory. A sample of the hourly summaries and weather observations is shown in figure 19. The second type of output from the program is a time series of ~10-s averaged observed and computed weather data. A sample of this output is shown in figure 20. The legend for figures 19 and 20 is furnished in figure 21. Output from the program along with the hourly weather observations were merged and imported into Microsoft Excel 97 spreadsheets to facilitate plotting. A sample worksheet is shown in figure 22.

#### 4.3.3 Data Visualization.

Final data visualization, analyses, and interpretation were accomplished using graphical and plotting routines provided in Excel. Two plots were created for each day of data. Samples of the plots are provided in figures 23 and 24. The first plot shows the wind speeds and additional weather data from the test bed and hourly surface observations. The rotor, sonic, and observed wind speed and gust speeds are shown on the primary ordinate axis. Wind data from the Number 1 set of mechanical sensors is not shown because heater failures which occurred during installation of the rotor sensor prevented the use of its associated direction vane. Wind speeds from the sonic sensor are plotted over the rotor wind speeds. For reference, a red-dashed horizontal baseline is used to visually depict a 35-knot (kn) wind threshold, which is one of the wind speed restrictions under the current Juneau Operations Specification, depending on the particular aircraft flight path and mountain wind conditions. Values of temperatures and visibility, and normalized values of the icing sensor and relative humidity in percent, are plotted

**08:35:42,42,259.8,.3,42,237.8,.485,5.211,85.5,1.228,10.93**

Field	1	2	3	4	5	6	7	8	9	10	11
Example	<b>08:35:42</b>	<b>42</b>	<b>259.8</b>	<b>.3</b>	<b>42</b>	<b>237.8</b>	<b>.485</b>	<b>5.211</b>	<b>85.5</b>	<b>1.228</b>	<b>10.93</b>
Description	DAS Time	Mechanical #1		Rsrved	Mechanical #2		Rsrved	Temp (C)	RH (percent)	Ice (V)	DAS Temp (C)
		Speed (MPH)	Dir		Speed (MPH)	Dir					

File:

```

08:35:42,42,259.8,.3,42,237.8,.485,5.211,85.5,1.228,10.93
08:35:52,44,244.1,.455,44,249.9,.416,5.214,85.5,1.225,10.93
08:39:31,43,240.9,.472,43,239.4,.48,5.404,84.4,1.211,10.98
08:39:41,44,233.8,.496,44,242.3,.466,5.407,84.3,1.22,10.98
08:39:51,41,235.3,.492,41,242,.468,5.414,84.3,1.235,10.99
08:40:01,44,271.1,0,42,261.2,.278,5.42,84.2,1.229,10.99
08:40:11,43,222.8,.504,43,252.3,.394,5.424,84.3,1.23,11
08:40:21,42,253.5,.383,41,231.7,.5,5.42,84.4,1.217,11
08:40:31,51,255.8,.355,50,233.4,.496,5.43,84.9,1.204,11
08:40:41,47,267,.157,48,249.2,.422,5.436,85.2,1.217,11
08:40:51,50,246.6,.441,49,221.7,.503,5.45,85,1.208,11.01
08:41:01,50,257.9,.327,51,264.2,.221,5.453,85,1.212,11.01
08:41:11,44,264.4,.217,44,252.3,.393,5.469,84.7,1.209,11.01
08:41:21,41,251.1,.405,40,241.3,.471,5.469,84.4,1.215,11.01
08:41:31,39,277.8,0,38,246.7,.441,5.486,84.2,1.202,11.02
08:41:41,38,266.3,.172,37,263.4,.237,5.489,84.2,1.214,11.02
08:41:51,40,260.6,.287,40,250.1,.414,5.495,84.3,1.196,11.02
08:42:01,41,253.1,.385,41,246.7,.44,5.492,84.4,1.199,11.03
08:42:11,47,253.5,.382,47,246.7,.441,5.509,84.6,1.191,11.03
08:42:21,46,241.5,.469,45,254.7,.368,5.518,84.5,1.196,11.03

```

FIGURE 17. DATALOGGER FILE FORMAT

08:35:36^ W1P2480018.5MEF~

Field	1	2	3	4	5	6	7	8	9
example	<b>08:35:36</b>	<b>^</b>	<b>W1</b>	<b>P</b>	<b>248</b>	<b>0018.5</b>	<b>M</b>	<b>EF</b>	<b>~</b>
Description	Time	02h (STX)	1-s ave indicator	Sensor 'Pass' flag	Dir	Speed	mph	Checksum	03h (ETX)

File:

```

17:02:51^W1P0110026.1MDE~
17:02:53^W1P0140028.7ME9~
17:02:57^W1P0110027.6ME4~
17:02:59^W1P0110027.6ME4~
17:03:00^W1P0120028.5ME5~
17:03:02^W1P0120028.5ME5~
17:03:03^W1P0120028.5ME5~
17:03:05^W1P0110029.9ME9~
17:03:09^W1P0110029.9ME9~
17:03:10^W1P0110029.9ME9~
17:03:12^W1P0120028.2ME2~
17:03:13^W1P0120028.2ME2~
17:03:15^W1P0120028.2ME2~
17:03:16^W1P0100027.0MDD~
17:03:21^W1P0100027.0MDD~
17:03:22^W1P0100027.0MDD~
17:03:23^W1P0070027.2ME5~
17:03:25^W1P0070027.2ME5~
17:03:26^W1P0190030.9ME9~
17:03:28^W1P0190030.9ME9~
17:03:32^W1P0150027.1ME3~
17:03:34^W1P0150027.1ME3~
17:03:35^W1P0150027.1ME3~
17:03:37^W1P0110033.1MDC~
17:03:38^W1P0110033.1MDC~
17:03:40^W1P0100029.8ME7~
17:03:44^W1P0140035.5ME5~
17:03:46^W1P0200029.4ME4~
17:03:47^W1P0200029.4ME4~
17:03:49^W1P0200029.4ME4~
17:03:50^W1P0140035.1ME1~
17:03:52^W1P0140035.1ME1~
17:03:53^W1P0140035.1ME1~
17:03:58^W1F9990999.9M08~
17:03:59^W1F9990999.9M08~
17:04:01^W1P0180032.3ME4~
17:04:02^W1P0180032.3ME4~
17:04:04^W1P0150031.5ME2~

```

Time delta > 1 second

Extra STX character

Sensor failure flags

FIGURE 18. ULTRASONIC FILE FORMAT

# Mt. Washington Data

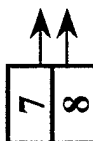
DATE = 0316



2	3	4	5	6
---	---	---	---	---

2359 160459Z 31066G78KT OSM -SN BLSN FZFG VV000 M14/M14 RMK LGT ICG  
0055 160555Z 31070G83KT OSM BLSN FZFG VV000 M15/M15 RMK SNE35 LGT ICG  
0159 160659Z 31076G97KT OSM BLSN FZFG VV000 M15/M15 RMK PK WND 310103/45 LGT ICG  
0259 160759Z 32070G93KT OSM BLSN FZFG VV000 M16/M16 RMK PK WND 310106/10 LGT ICG  
0353 160853Z 32081G109KT OSM BLSN FZFG VV000 M16/M16 RMK MOD ICG  
0459 160959Z 32078G119KT OSM BLSN FZFG VV000 M18/M18 RMK LGT ICG  
0557 161057Z 32077G107KT OSM BLSN FZFG VV000 M18/M18 RMK PK WND 320114/30 LGT ICG  
0655 161155Z 32066G82KT OSM BLSN FZFG VV000 M18/M18 RMK PK WND 320108/25 LGT ICG  
0747 161247Z 32076G105KT OSM BLSN FZFG VV000 M18/M18 RMK LGT ICG  
0858 161358Z 29070G82KT OSM BLSN FZFG VV000 M18/M18 RMK MOD ICG  
0952 161452Z 30076G88KT OSM BLSN FZFG VV000 M17/M17 RMK MOD ICG  
1058 161558Z 29083G93KT OSM BLSN FZFG VV000 M16/M16 RMK MOD ICG  
1159 161659Z 29076G92KT 1/16SM BLSN FZFG VV000 M16/M16 RMK SUN DMLY VSBL LGT ICG  
1247 161747Z 29076G96KT 1/16SM DRSN FZFG VV000 M16/M16 RMK FZFG INTMT SUN DMLY VSBL LGT ICG  
1359 161859Z 29070G88KT 30SM DRSN FEW020 M14/M17 RMK INTMT FZFG LGT ICG  
1453 161953Z 29078G94KT 40SM DRSN FEW003 SCT020 M13/M16  
1551 162051Z 28071G83KT 40SM DRSN FEW003 SCT020 M13/M15  
1659 162159Z 28063G73KT 5SM DRSN OVC002 M13/M15 RMK CIG LMRG RPDLY  
1752 162252Z 28063G72KT OSM DRSN FZFG VV000 M13/M13 RMK LGT ICG  
1849 162349Z 28063G73KT OSM DRSN FZFG VV000 M12/M12 RMK LGT ICG  
1950 170050Z 28071G83KT OSM DRSN FZFG VV000 M12/M12 RMK LGT ICG  
2057 170157Z 28069G77KT OSM DRSN FZFG VV000 M12/M12 RMK LGT ICG  
2158 170258Z 28070G82KT OSM DRSN FZFG VV000 M12/M12 RMK LGT ICG  
2258 170358Z 29066G83KT OSM DRSN FZFG VV000 M11/M11 RMK LGT ICG  
2357 170457Z 28073G82KT OSM DRSN FZFG VV000 M11/M11 RMK LGT ICG  
0050 170550Z 28071G82KT OSM DRSN FZFG VV000 M11/M11 RMK LGT ICG

9	10	11	12	13	14	15	16	17	18	19	20
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00-01 1 ( 99.9) 98 326 0 326 16 318 60 0 -16 16 -60 7 -44 -13 90  
41 10 2 12 2  
01-02 131 ( 83.6) 98 330 0 327 21 321 58 2 -21 10 -58 8 -37 -13 90  
16 13 2 12 2 10 8  
02-03 186 ( 72.4) 97 330 0 329 20 322 57 1 -20 11 -57 8 -37 -14 90  
11 35 21 3 8 11 16 3 16 11 11 10  
03-04 ( 43.7) 56 331 0 324 26 321 61 7 -26 10 -61 2 -35 -14 89  
47 18 16 2 6 10 16 2 17 10 13 9  
04-05 285 ( 44.8) 98 329 0 311 30 320 61 18 -30 10 -61 -9 -31 -15 89  
1 26 13 5 7 10 16 5 19 10 10 9  
05-06 266 ( 53.4) 98 346 0 316 33 316 78 29 -33 28 -78 0 -45 -16 88  
5 52 16 2 35 53 31 2 45 53 36 53

FIGURE 19. SUMMARY FILE FORMAT



9	13	14	15	16	17	18	19	20	12						
DATE = 0226															
00:00:06	44.7	15.3	36.4	22.7	43.8	24.3	8.3	-7.4	0.9	-9.0	-7.4	-1.6	-11.1	90.3	98.2
00:00:16	26.5	15.9	24.6	22.7	37.4	24.2	1.9	-6.7	-10.9	-8.3	-12.8	-1.5	-11.1	90.5	98.3
00:00:26	19.6	15.3	26.3	21.5	32.4	20.9	-6.7	-6.1	-12.8	-5.5	-6.1	0.6	-11.1	90.6	98.3
00:00:36	21.2	12.3	33.9	18.4	32.1	16.1	-12.6	-6.1	-10.9	-3.8	1.8	2.3	-11.1	90.7	98.3
00:00:46	32.2	11.6	30.8	17.2	34.6	18.1	1.4	-5.5	-2.4	-6.4	-3.8	-0.9	-11.1	90.7	98.3
00:00:56	51.7	11.6	47.2	17.8	40.1	20.3	4.5	-6.1	11.6	-8.7	7.1	-2.6	-11.1	90.7	98.3
00:01:06	64.0	13.5	37.6	19.0	43.1	20.7	26.4	-5.5	20.9	-7.2	-5.5	-1.7	-11.1	90.7	98.2
00:01:16	39.8	12.9	26.9	19.0	42.6	19.5	12.9	-6.1	-2.8	-6.7	-15.7	-0.5	-11.1	90.6	98.3
00:01:26	45.0	13.5	37.5	19.6	39.5	20.7	7.5	-6.1	5.5	-7.2	-2.0	-1.0	-11.1	90.6	98.4
00:01:36	40.1	13.5	42.7	19.0	52.1	18.5	-2.5	-5.5	-12.0	-5.0	-9.4	0.5	-11.1	90.5	98.3
00:01:46	58.6	14.7	43.0	20.2	47.9	18.8	15.6	-5.5	10.7	-4.1	-4.9	1.4	-11.1	90.5	98.3
00:01:56	38.8	14.1	31.2	19.6	45.8	18.7	7.6	-5.5	-7.0	-4.6	-14.6	0.9	-11.1	90.5	98.2
00:02:06	41.8	12.3	22.2	17.8	41.7	16.7	19.6	-5.5	0.1	-4.5	-19.5	1.0	-11.1	90.5	98.2
00:02:16	47.1	12.3	37.3	17.8	45.9	19.3	9.8	-5.5	1.2	-7.1	-8.6	-1.6	-11.1	90.5	98.3
00:02:26	41.0	13.5	47.6	19.0	39.1	18.9	-6.6	-5.5	1.9	-5.4	8.5	0.1	-11.1	90.5	98.3
00:02:36	56.3	13.5	49.4	17.8	49.9	17.9	6.9	-4.3	6.4	-4.4	-0.5	-0.2	-11.1	90.4	98.3
00:02:46	48.0	12.9	34.8	17.2	43.5	17.0	13.1	-4.3	4.5	-4.2	-8.7	0.1	-11.1	90.4	98.3
00:02:56	34.8	10.4	26.1	15.3	38.4	15.0	8.7	-4.9	-3.6	-4.6	-12.3	0.3	-11.1	90.4	98.3
00:03:06	50.9	11.6	39.9	17.2	41.3	19.1	11.0	-5.5	9.6	-7.5	-1.4	-2.0	-11.1	90.3	98.3
00:03:16	59.5	12.3	58.5	17.8	55.1	17.8	1.0	-5.5	4.4	-5.5	3.4	0.0	-11.2	90.3	98.3
00:03:26	55.2	12.9	43.7	17.8	51.4	17.4	11.5	-4.9	3.8	-4.6	-7.7	0.4	-11.2	90.2	98.3
00:03:36	52.7	13.5	37.3	17.8	42.2	18.6	15.4	-4.3	10.5	-5.1	-4.9	-0.8	-11.2	90.2	98.2
00:03:46	37.6	14.7	31.0	20.2	40.9	21.1	6.6	-5.5	-3.3	-6.4	-9.9	-0.9	-11.2	90.2	98.2
00:03:56	61.6	15.3	33.7	22.1	35.7	23.9	27.9	-6.7	25.9	-8.6	-2.0	-1.8	-11.2	90.2	98.2
00:04:06	28.1	16.6	35.3	22.7	47.8	22.6	-7.3	-6.1	-19.7	-6.0	-12.5	0.1	-11.2	90.2	98.3
00:04:16	41.8	15.3	33.4	22.1	37.7	22.2	8.4	-6.7	4.1	-6.9	-4.3	-0.1	-11.2	90.2	98.3
00:04:26	25.0	14.7	19.7	20.8	35.0	21.1	5.3	-6.1	-10.0	-6.3	-15.3	-0.2	-11.2	90.2	98.3
00:04:36	27.3	15.3	26.1	22.7	27.3	22.6	1.2	-7.4	0.0	-7.3	-1.2	0.1	-11.2	90.3	98.2
00:04:46	24.6	15.9	10.9	20.8	36.0	20.8	13.7	-4.9	-11.4	-4.9	-25.1	0.0	-11.2	90.3	98.3
00:04:56	34.8	12.3	39.9	17.2	32.8	15.2	-5.0	-4.9	2.0	-2.9	7.1	2.0	-11.2	90.4	98.3
00:05:06	46.7	9.8	31.9	14.7	45.8	14.7	14.7	-4.9	0.9	-4.9	-13.9	0.0	-11.2	90.4	98.3
00:05:16	35.3	11.0	41.7	15.9	40.8	17.3	-6.3	-4.9	-5.5	-6.3	0.9	-1.4	-11.2	90.4	98.3
00:05:26	37.5	10.4	24.6	14.7	42.9	14.7	12.9	-4.3	-5.4	-4.3	-18.3	0.0	-11.2	90.4	98.3
00:05:36	34.8	10.4	42.6	15.3	40.5	16.4	-7.8	-4.9	-5.7	-6.0	2.1	-1.1	-11.2	90.3	98.3
00:05:46	17.5	9.8	22.0	15.3	43.3	15.8	-4.5	-5.5	-25.8	-6.0	-21.3	-0.5	-11.2	90.3	98.3
00:05:56	45.1	11.0	47.4	17.2	40.1	17.4	-2.3	-6.1	5.0	-6.4	7.3	-0.3	-11.2	90.2	98.2

DATE = 0226

FIGURE 20. OUTPUT FILE FORMAT

<b>Note</b>	<b>Group</b>	<b>Description</b>
<b>1</b>	File	Date (mmdd)
<b>2</b>	METAR	Time Converted (LST)
<b>3</b>		Day of month and time in UTC (ddhhmm)
<b>4</b>		Wind direction, speed, and gust (true north, knots)
<b>5</b>		Visibility, present weather, sky conditions, temperatures
<b>6</b>		Remarks, including icing information (bold)
<b>7</b>		Mean Values
<b>8</b>		Standard Deviation Values
<b>9</b>	Test bed	Analysis period (hour LST)
<b>10</b>		Sample size, N (sample sizes less than 300 are not shown)
<b>11</b>		Sonic Failure Rate (percent)
<b>12</b>		Normalized Icing (percent)
<b>13</b>		Mechanical #1 direction and speed
<b>14</b>		Mechanical #2 direction and speed
<b>15</b>		Sonic direction and speed
<b>16</b>		(Mechanical #1 - Mechanical #2) direction and speed difference
<b>17</b>		(Mechanical #1 - Sonic) direction and speed difference
<b>18</b>		(Mechanical #2 - Sonic) direction and speed difference
<b>19</b>		Temperature (°C)
<b>20</b>		Relative Humidity (percent)

FIGURE 21. LEGEND TO SUMMARY AND OUTPUT FILE FORMATS

DATE = 0303																								
Time	NWS Dir	NWS Spd	NWS Gust	Vis	Wx	Cloud	Temp	Remarks	Hydro1 Dir	Hydro1 Spd	Hydro2 Dir	Hydro2 Spd	Handar Dir	Handar Spd	H1-H2 Dir	H1-H2 Spd	H1-H2 Dir	H1-H2 Spd	H2-Han Dir	H2-Han Spd	Temp	RH	ke	
0:00:07	290	48	57	1/16SM	LSN FZr	VV000	M16/M16	FG INTMT	173.3	0	315.2	50.9	0	0	0	-141.9	-50.9	0	0	0	0	-14.8	88.1	-0.2
0:00:17									173.3	0	314.2	52.7	0	0	0	-140.9	-52.7	0	0	0	0	-14.8	88	-0.3
0:00:27									173.3	0	315.3	51.5	0	0	0	-142	-51.5	0	0	0	0	-14.8	88.1	-0.3
0:00:37									173.3	0	324	51.5	0	0	0	-150.7	-51.5	0	0	0	0	-14.8	88.1	-0.2
0:00:47									173.3	0	301.7	55.2	0	0	0	-128.4	-55.2	0	0	0	0	-14.8	88	-0.2
0:00:57									173.3	0	316.8	50.3	0	0	0	-143.5	-50.3	0	0	0	0	-14.8	88	-0.2
0:01:07									173.3	0	320.7	43.5	0	0	0	-147.4	-43.5	0	0	0	0	-14.8	88	-0.3
0:01:17									173.3	0	326.7	42.3	0	0	0	-153.4	-42.3	0	0	0	0	-14.8	88	-0.3
0:01:27									173.3	0	326.7	41.7	0	0	0	-153.4	-41.7	0	0	0	0	-14.8	88	-0.3
0:01:37									173.3	0	322.5	44.7	0	0	0	-149.2	-44.7	0	0	0	0	-14.8	88	-0.3
0:01:47									173.3	0	320.9	42.3	0	0	0	-147.6	-42.3	0	0	0	0	-14.8	88	-0.3
0:01:57									173.3	0	327.6	42.9	0	0	0	-154.3	-42.9	0	0	0	0	-14.8	88	-0.3
0:02:07									173.3	0	322	44.7	0	0	0	-148.7	-44.7	0	0	0	0	-14.8	88	-0.3
0:02:17									173.3	0	315	37.4	0	0	0	-141.7	-37.4	0	0	0	0	-14.8	88	-0.3
0:02:27									173.3	0	337.3	39.8	0	0	0	-164	-39.8	0	0	0	0	-14.8	88	-0.3
0:02:37									173.3	0	7.5	46.6	0	0	0	-165.8	-46.6	0	0	0	0	-14.8	88	-0.3
0:02:47									173.3	0	339.9	39.8	0	0	0	-166.6	-39.8	0	0	0	0	-14.8	88	-0.3
0:02:57									173.3	0	336.5	42.3	0	0	0	-163.2	-42.3	0	0	0	0	-14.8	88	-0.3
0:03:07									173.3	0	326.5	41.1	0	0	0	-153.2	-41.1	0	0	0	0	-14.8	88	-0.3
0:03:17									173.3	0	334.5	45.4	0	0	0	-161.2	-45.4	0	0	0	0	-14.8	88	-0.3
0:03:27									173.3	0	341.5	46	0	0	0	-168.2	-46	0	0	0	0	-14.8	88	-0.3
0:03:37									173.3	0	330.1	50.9	0	0	0	-156.8	-50.9	0	0	0	0	-14.8	88	-0.3
0:03:47									173.3	0	312.7	42.9	0	0	0	-139.4	-42.9	0	0	0	0	-14.8	88	-0.3
0:03:57									173.3	0	304.8	37.4	0	0	0	-131.5	-37.4	0	0	0	0	-14.8	88	-0.3
0:04:07									173.3	0	335	43.5	0	0	0	-161.7	-43.5	0	0	0	0	-14.8	88	-0.3
0:04:17									173.3	0	334.5	43.5	0	0	0	-161.2	-43.5	0	0	0	0	-14.8	88	-0.3
0:04:27									173.3	0	332.1	38.6	0	0	0	-158.8	-38.6	0	0	0	0	-14.8	88	-0.3
0:04:37									173.3	0	335.7	49	0	0	0	-162.4	-49	0	0	0	0	-14.8	88	-0.3
0:04:47									173.3	0	322.7	46	0	0	0	-149.4	-46	0	0	0	0	-14.8	88	-0.2
0:04:57									173.3	0	331.5	46	0	0	0	-158.2	-46	0	0	0	0	-14.8	88	-0.3
0:05:07									173.3	0	328.9	48.4	0	0	0	-155.6	-48.4	0	0	0	0	-14.8	88	-0.2
0:05:17									173.3	0	350.1	49	0	0	0	-176.8	-49	0	0	0	0	-14.8	88	-0.3
0:05:27									173.3	0	327.7	44.1	0	0	0	-154.4	-44.1	0	0	0	0	-14.8	88	-0.2
0:05:37									173.3	0	330.1	47.8	0	0	0	-156.8	-47.8	0	0	0	0	-14.8	88	-0.3
0:05:47									173.3	0	325.8	49	0	0	0	-152.5	-49	0	0	0	0	-14.8	88	-0.2
0:05:57									173.3	0	325.4	46	0	0	0	-152.1	-46	0	0	0	0	-14.8	88	-0.2
0:06:07									173.3	0	322.2	48.4	0	0	0	-148.9	-48.4	0	0	0	0	-14.8	88	-0.2
0:06:17									173.3	0	328.1	49.7	0	0	0	-154.8	-49.7	0	0	0	0	-14.8	88	-0.3
0:06:27									173.3	0	327.6	55.2	0	0	0	-154.3	-55.2	0	0	0	0	-14.8	88	-0.2
0:06:37									173.3	0	324.8	53.3	0	0	0	-151.5	-53.3	0	0	0	0	-14.8	88	-0.2
0:06:47									173.3	0	328.9	52.7	0	0	0	-155.6	-52.7	0	0	0	0	-14.8	88	-0.2

FIGURE 22. SPREADSHEET FORMAT

FIGURE 23. SAMPLE WIND SPEED PLOT

March 3, 1999

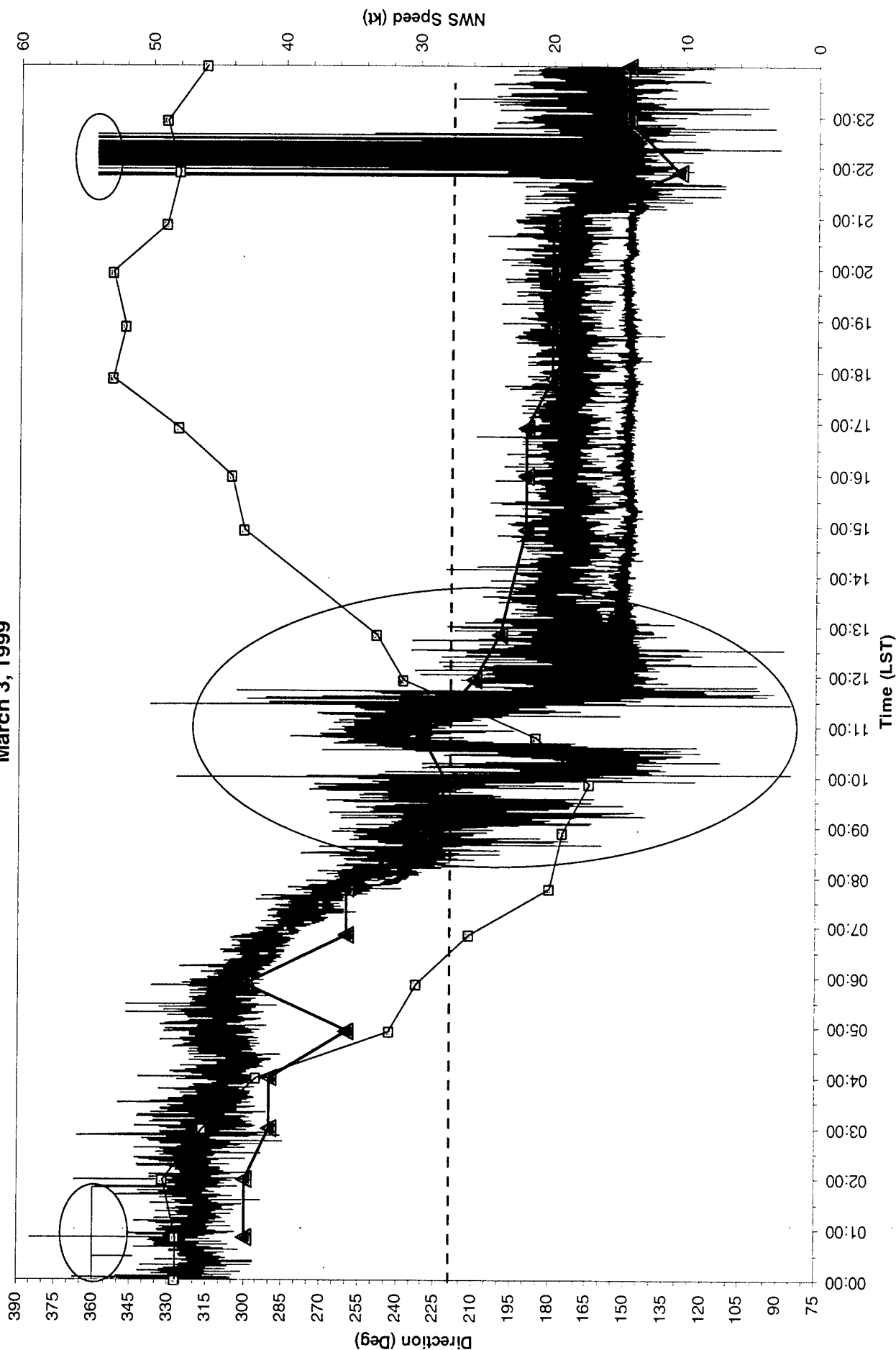


FIGURE 24. SAMPLE WIND DIRECTION PLOT

on the secondary ordinate axis. Drop lines depict the spread between the observed wind speed and gust values, and the observed temperature and dew point temperature. Text from the Present Weather field in the hourly surface observations is also indicated as the vertically aligned italicized text which is generally positioned below the temperature values. Additional icing information extracted from the Remarks field is indicated as light blue graphics and horizontally aligned italicized text at the bottom of the plots. Finally, ovals are added to point out particular cases and features of interest, which are discussed further in the text.

The second daily plot shows the direction vane, sonic, and observed wind directions along the primary ordinate axis. Sonic wind directions are plotted over the vane direction values. For reference, corresponding observed wind speed values are displayed according to the secondary ordinate axis. Red-dashed horizontal baselines are used to represent the azimuth orientation corresponding to the longitudinal axis of the test bed-mounting fixture. Ovals are used to point out particular cases and features further discussed in the text.

#### 4.4 RESULTS/DISCUSSION.

A summary of the data collected over the 37-day study is presented appendix A. This overview breaks out the daily test bed data into separate cases according to prevailing weather conditions, and various wind, temperature, and relative humidity scenarios. The hourly mean and standard deviation values of the observed and computed weather parameters, along with corresponding hourly surface observations, are provided in appendix B. Excel worksheets showing the times series plots are given in the figures supplied in appendix C. Because of the large volume of data in these two appendices, they are provided as separate attachments to this report and are available through ACT-320. Output text files representing the time series of 10-s averaged observed and computed weather data are also available through ACT-320.

As previously mentioned, video images were not available for monitoring the test bed and wind sensors. This presented the largest shortcoming of the study, as there was no way to correlate sensor data and positively verify the existence and extent of icing on the sensors. Other difficulties encountered are noted in following paragraphs.

##### 4.4.1 Ice Sensor.

Inspection of the plots shows that the behavior of the ice detector was erratic on occasions during the demonstration program. The time series are not consistent with the expected nominal response shown in figure 10. For instance, data for the period February 13–14, 1999, shows extended periods of observed icing, but the sensor output remained high without tripping the probes deicing heater. On other occasions, the sensor intermittently attempts to deice itself. Similar behavior is shown for the light icing period February 17–18, 1999. By the time the sensor's output voltage reaches 100 percent, the heater should be activated regardless of the external conditions. Further review of the data indicates there may have been a problem with the heater control system, as maximum output voltages of 6.8 volts direct current (Vdc) were recorded, which is greater than the sensor's 5 Vdc output voltage specification. Sensor performance may have also been affected by excessive ice buildup immediately around the probe caused by the flanges and rough edges associated with the I-beam and specially fabricated sensor

housing (see figure 9). The beam and unheated housing may have promoted the formation of ice around, rather than on, the probe. Original plans had called for wrapping the sensor housing with commercial heat tape; however, none was available through local vendors at the time of installation. For any future efforts, the housing should be wrapped with heat tape or the design modified to prevent excessive ice and snow build up. Alternate ice detection technologies should also be considered.

#### 4.4.2 Relative Humidity Sensor.

The integrated air temperature and relative humidity probe also displayed erratic behavior on occasion during the demonstration program. A reasonable response for the relative humidity sensor, which is consistent with the observed dew point temperatures, is shown for February 27–28, 1999. However, erratic relative humidity response was noted on other occasions, particularly for February 25, 1999. The setup of the sensor was subsequently reviewed. The probe and radiation shield were mounted in a specially fabricated aluminum canister which was open at the bottom and approximately 0.5 m (1.5 feet) above the ground. Examination of figure 6 shows the test bed with snow and snowdrifts prior to installation of the sensors. The figure suggests that snow accumulation about the sensor housing may have closed off the bottom opening or contributed to ice buildup from below the canister. In any future effort, the canister should be raised in order to be unaffected by blowing and drifting snow.

#### 4.4.3 Test bed Server.

Some problems with the remote access of the test bed server were experienced. Data collected and recorded during the period March 15–20, 1999, were sampled at different sample rates. Closer examination of the raw data for the 5-day period indicates that the datalogger and sonic sensor data sampling rates were erratic and consistently less than normal. During this period, the sonic sensor and datalogger sampling rates varied at about 1–5 and 7–13 s, respectively, whereas the corresponding nominal sampling rates are approximately fixed at 1 and 10 s. Based on a log of remote access activities, it was determined that the data acquisition process was affected, perhaps due to an errant process in the PC software following an unsuccessful remote login attempt.

#### 4.4.4 Wind Sensors.

Sufficient data was collected during the effort to derive some useful results and preliminary conclusions on the wind sensor performance. Because of the expected and unexpected test bed limitations as well as the unavailability of the video camera, it is recognized that caution should be used in making any hard conclusions concerning the performance of the wind sensors. It is also noted that the sonic sensor was a prototype unit and no performance levels were implied or guaranteed by the manufacturer.

##### 4.4.4.1 Mechanical Sensors.

During the course of installation and testing, several problems were encountered with the Number 1 rotor anemometer and direction vane. First, during installation, the rotor heater controller failed. Because the rotor anemometer was considered the more important of the two for testing, the direction vane heater controller was used to operate the rotor anemometer heater.

This rendered the direction vane heater inoperable, and consequently, the Number 1 direction vane was considered out of service. The Number 1 anemometer was operational at the completion of the installation. However, a total mechanical failure of the Number 1 rotor anemometer was subsequently experienced early in the study. It was found that the failure was due to excessive heater output resulting in damage to the rotor bearing assembly. The sensor and controller were subsequently removed and returned to the manufacturer.

Collected data indicates that on March 16, 1999, the mounting adapter of the Number 2 direction vane apparently loosened and turned during conditions in which the sensor had been experiencing sustained 60 kn winds and gusts to 90 kn, over the 14-hour period leading up to the event. The onset of this event is shown in figure 25. The result was an  $\sim 70^\circ$  error in position throughout the remainder of the study, as indicated in the plots.

The plots were analyzed in light of the effects of the wind sensors on one another when winds were parallel to the longitudinal axis of the test bed-mounting fixture (see figure 3). Effects of the ultrasonic and the Number 2 mechanical sensors as the most leeward sensors of the array are illustrated in figures 23 and 24. These figures show the March 3, 1999, wind speeds and directions when the wind became approximately  $220^\circ$  and parallel to the test bed beginning at about 0900 Local Standard Time (LST). A pronounced effect was noted for the leeward sensors. This effect was anticipated because of the likelihood that significant ice masses would grow on the failed and inactive Number 1 sensors and masts. The plots in appendix C show this effect was also experienced on February 18, and on March 1, 4, and 6, 1999. On the other hand, little effect is seen when the winds are about  $40^\circ$  and the Mechanical 2 and ultrasonic sensors are effectively the windward sensors of the array, as experienced on March 10–11, 1999.

In general, good agreement among the wind sensors was seen for fair weather conditions, although a bias in wind direction differences among the wind sensors was observed. A small bias could be expected due to the sensor installation and the estimation procedure used to achieve azimuth alignment of the sensors; however, there are extended periods when the rotor wind speeds are consistently greater than the sonic wind speeds by as much as 10 kn or more. The possibility exists that ice forming on unheated or insufficiently heated surfaces could have disturbed airflow around one or both sensors.

Results for light winds are shown for February 19–21, 24–25, and March 11–14, 1999. In general, there is more wind direction variability for the mechanical direction vane than for the sonic sensor, especially for wind speeds greater than about 35 kn as shown for February 26, 1999.

An unusual event was noted for the direction vane during the period 0030–1100 LST on March 5, 1999. A time series of the wind direction data and the corresponding wind direction frequency histogram for the period are shown in figure 26. The figure shows a skewed wind direction distribution for the mechanical sensor indicating that the azimuthal movement of the direction vane was limited at  $\sim 318^\circ$ . This effect may indicate the presence of an interfering ice formation on the southeast side of the sensor head stemming up and around from the sensor's mast. This observation is consistent with data shown for March 4, 1999, which shows that winds were consistently from  $\sim 150^\circ$  under snow, freezing rain, and light icing conditions for a 12-hour period before the wind began to move back around to the north. It should be noted that the sonic



March 16 - 17, 1999

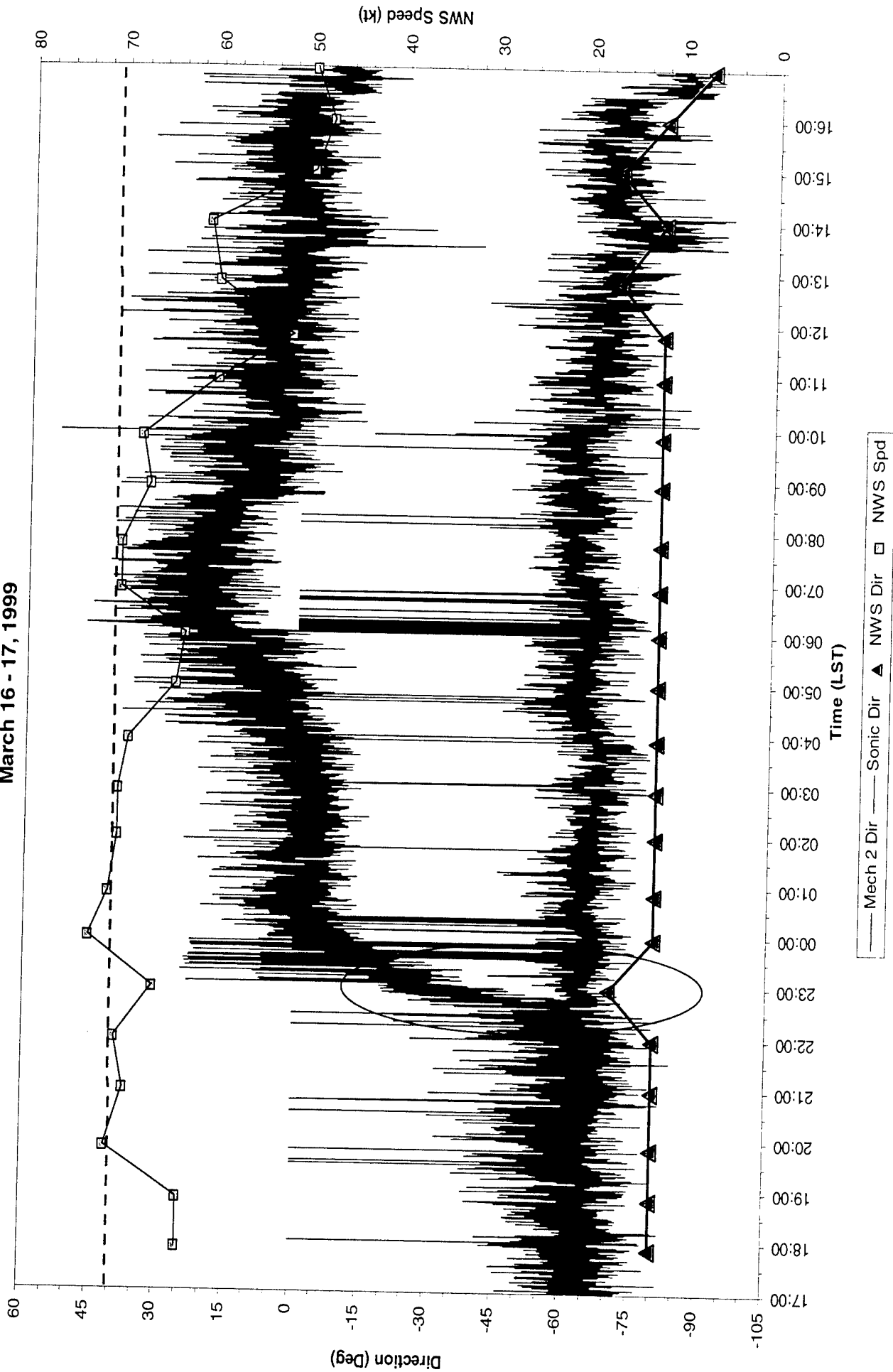


FIGURE 25. WIND DIRECTION FOR MARCH 16-17

March 5, 1999

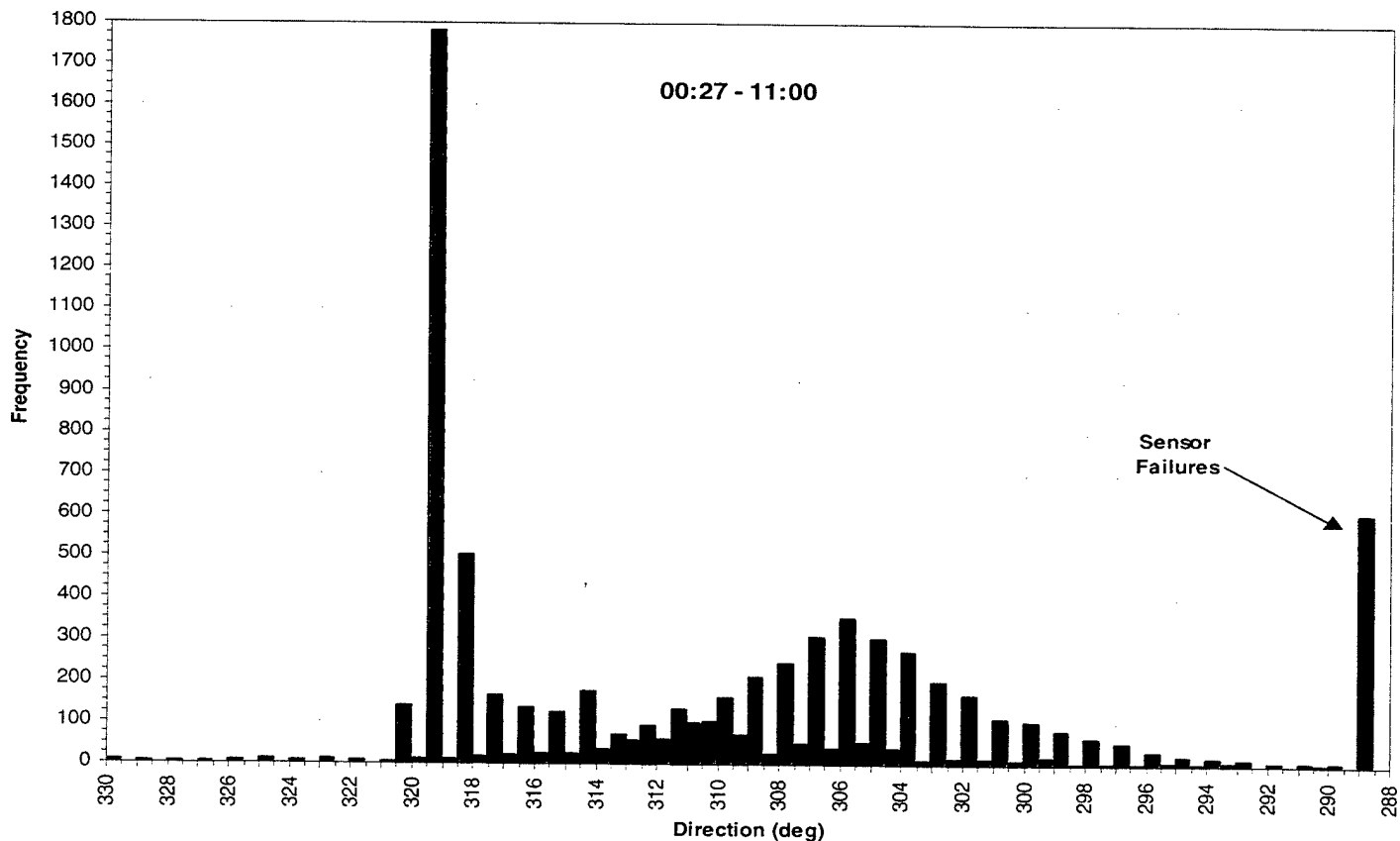
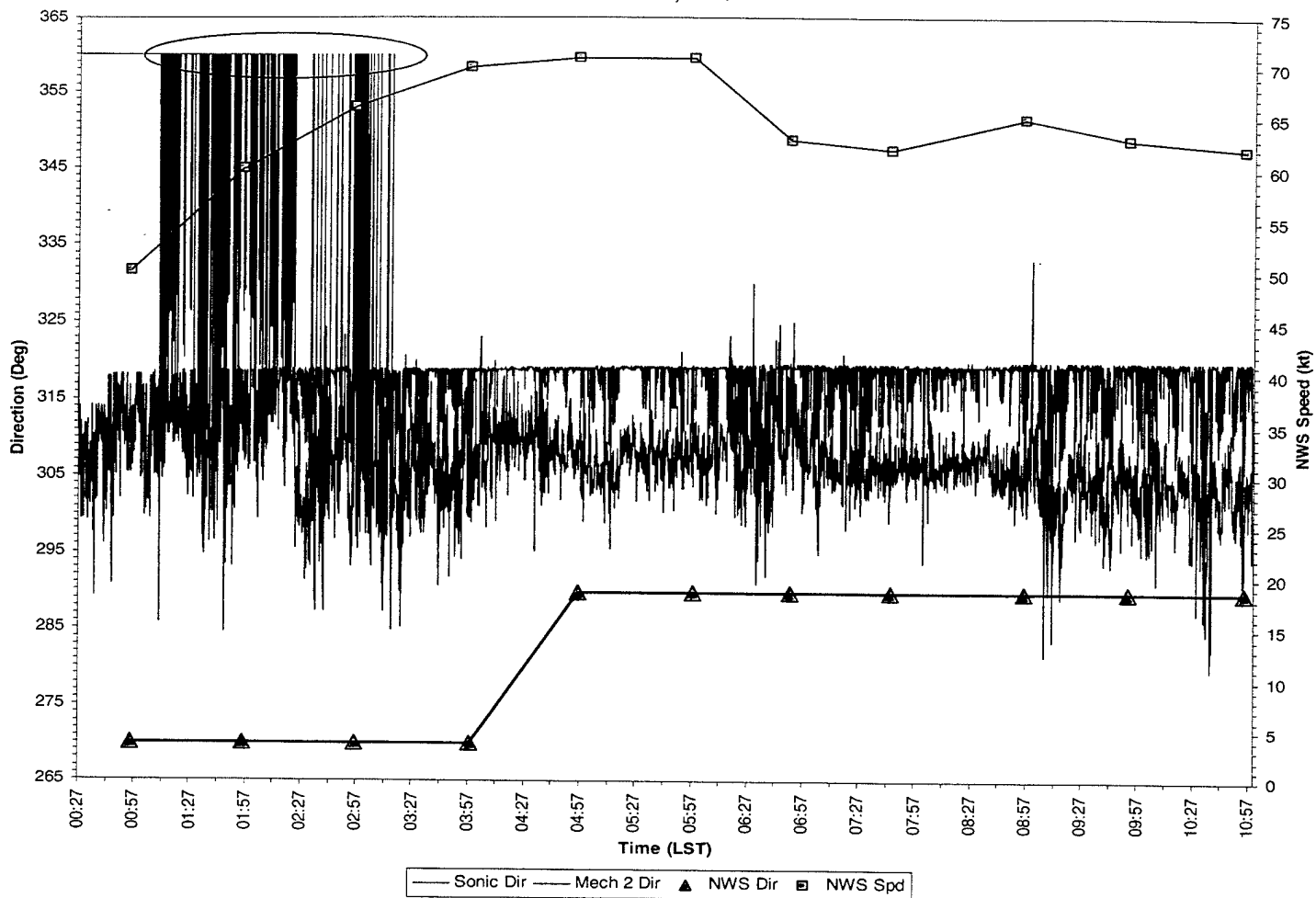


FIGURE 26. WIND DIRECTION DISTRIBUTION FOR 0027-1100 LST ON MARCH 5

sensor experienced a significant number of failures (~16 percent) during this period. Rime icing of the sensors was highly probable during this period, and is the likely cause of the failures.

Anomalies in the rotor speed were also noted for the approximately 13-hour period from 2000 LST on March 15, through 0845 on March 16, 1999, during which the present weather indicated snow, blowing snow, freezing fog, and light icing. Wind speeds for the period are shown in figure 27. During this period the mechanical sensor wind speeds dropped off to about 10–20 kn while observations indicated winds from 50–80 kn winds, gusting to almost 120 kn. As indicated in the figure, the sonic sensor experienced a significant number of failures also during this period. Again, conditions for rime icing were favorable and are the likely cause of the failures. It is not clear whether the slowing of the rotor anemometer was caused by ice accumulating on the rotor itself, or building up from the unheated mast below.

#### 4.4.4.2 Ultrasonic Sensor.

Results of the ultrasonic sensor were reviewed. From the 37 days of data retrieved, a total of 742 hours (~31 days) of sonic anemometer data were recorded and collected. This sensor experienced a significant amount of data failures (total ~66 hours) throughout the experiment and was effectively unavailable approximately 9 percent of the time. A failure qualifies as a bad data flag received from the sensor as a result of unreliable readings. The failures appear highly correlated to snow and icing conditions. Collected data indicates the sensor experiences a large number of failures when there is light to moderate snow (including drifting and blowing snow), and icing, under certain wind and temperature conditions. The failures during these events are generally intermittent in nature, with frequencies proportional to the severity of the weather conditions. However, inspection of the plots shows there were instances where the sensor was in complete failure-mode over periods ranging from 2 to 3 continuous hours.

There were a significant number of these snow and icing events where the sensor was wandering in and out of failure mode (see February 28, and March 2, 4, 7, 8, 15–16, 1999). It should also be noted here that there were a number of occasions where the sensor was intermittently reporting supposedly valid data, and the data was found to be inaccurate and unreliable. An extreme case of this was found for March 7, 1999. On this occasion, the sensor was primarily in failure mode from about 1845–1930 LST because of a typical blowing-snow and light-icing event. During this period there were a few 'valid' sonic reports (sensor flag as Pass) which appear to be somewhat reasonable. However, there were also a number of 'valid' wind speed reports that ranged from 246 to 345 mph. In total, there were approximately 11.5 minutes of 1-second samples of sonic data where the data was greater than the sensor's reported operational range of 144 mph. Although this was the only extreme scenario found in the entire dataset, additional unreasonable data values were found on March 16, 19–20, 1999.

At this time, the exact cause of the sensor failures and inaccurate data are not known. Causes may be either rime ice buildup on or near the sensor transducers or the effects of precipitation and freezing fog traveling through the sensor sampling volume. Observed errors could also be caused by shadow effects of ice growing up from the sensor mast, or flow distortion around the sensor assembly from nearby sensors. It may also be possible that the heater output and/or duration may not be powerful enough to melt the ice, since the most significant number of

March 15 - 16, 1999

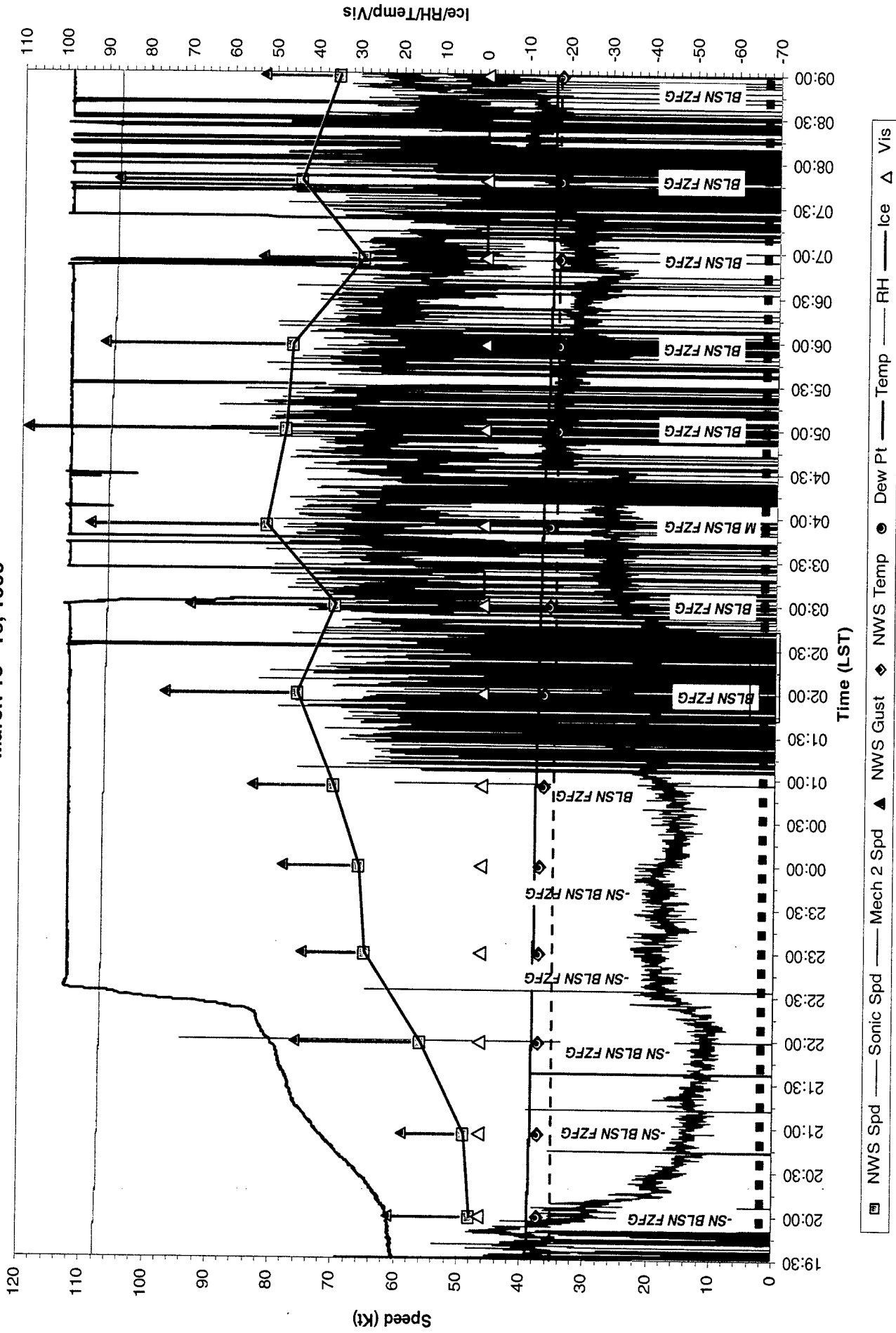


FIGURE 27. WIND SPEED FOR MARCH 15-16

failures occurred during icing events. Unfortunately, the difficulties encountered with the installation and operation of the video camera prevented the determination of which of the above scenarios, if any, is correct.

## 5. CONCLUSIONS.

This test effort was considered a preliminary survey and shakedown exercise, as a number of test assumptions including scheduling and setup limitations were understood before installation of the test bed. Funding delays resulted in slips in planning, coordination, and schedule. The installation was delayed until February, and took place during unfavorable weather conditions. The first 3 months of the winter season were consequently missed, and a burn-in period, which might have identified some of the problems with the test suite, was not available.

### 5.1 TEST BED SETUP.

The test site is remote, and it is recognized that the test methodology and setup for a similar and future effort could be improved and better controlled. Several needed enhancements to the test bed setup were identified, including the need for calibration and alignment procedures, better sensor siting, and improved equipment enclosure designs for the ice detector and the temperature and relative humidity sensors. Although the local and remote data collection and communications design and setup proved to be reliable, the need for a few improvements to the remote access of the test bed server and communications were also noted. Overall, a number of test setup, control, and data collection issues were identified and noted for preparation of a proposed follow-up effort.

### 5.2 WIND SENSOR PERFORMANCE.

Inspection of the data shows that the wind sensors were affected under certain snow and icing conditions. The sonic sensor experienced a significant amount of data failures throughout the experiment, and was effectively unavailable approximately 9 percent of the time. The failures are highly correlated to snow and icing conditions. In addition to the intermittent and long duration failures, there were instances when the sensor reported unrealistic wind speed values beyond the operational range of the sensor—but were declared as valid by the sensor. The sensor's internal quality control firmware should be flagging this obviously erroneous data. It is clear from the data that modification and further testing of the ultrasonic sensor would be needed before consideration for use in the Wind Hazard Information System (WHIS). Data and results in this report also suggest that, although the mechanical sensors may be suitably heated, large ice formations may grow up from the unheated sensor masts and consequently shield and affect the performance of these sensors.

## 6. RECOMMENDATIONS.

Based on the findings of the demonstration program, it is recommended that a larger scale and more controlled evaluation of several types of wind sensor technologies and sensors be performed on Mt. Washington in the winter of 2000–2001. The test bed would be set up in similar fashion as was done for the 1999 demonstration program, except the specific

improvements noted in this report would be incorporated to ensure a more controlled assessment. This would include improved sensor housing and siting considerations, investigation of an alternative ice detection sensor, and a more reliable video camera. Since it is realized that the success of this proposed study would require a reliable and robust instrument, alternative means for mounting the video camera would be assessed. Other cameras would also be considered. Finally, efforts would be made to secure cleaner electrical power and signal communications to the heated shelter, and test bed instruments and equipment. Additional planning considerations would include commercial grade or National Electrical Manufacturers Association (NEMA)-rated environmental instrument enclosures. The on-line monitoring, and data reduction and analysis tools, including the software and plotting programs developed for the 1999 demonstration would be used to monitor, analyze, and present the data.

It is recommended that the ultrasonic heated anemometer be reevaluated. It is expected that, if the conditions surrounding data failures could be clearly defined and linked to the sensor itself, the manufacturer might be willing to consider signal processing and heater modifications to correct the failures and marginal sensor performance noted during the demonstration. This would allow for consideration of alternate sensors for use in the Wind Hazard Information System (WHIS). The mechanical sensors should also be reevaluated to verify the performance and reliability of the rotor anemometer, which failed during the demonstration program. A more positive means of mounting the direction vanes should be investigated as it was found that the sensor-mounting adapter set screws came loose from the pipe stub mast during the experiment.

In addition, it is recommended that the scope of the study be extended to verify the performance of other wind sensor modifications, models, and technologies. Based on another recent study and wind tunnel tests, the manufacturer of the mechanical wind sensor is considering a modified sensor with longer rotor ears. The purpose of this modification is to enhance the response and performance of the sensor when there is a vertical component of wind. Because of the heater requirements and new larger-ear design, it is suggested that this new sensor also be installed and evaluated to study effects of snow and icing conditions. The manufacturer of the mechanical sensors is also considering the development of a new propeller-vane type design. If a prototype is produced, it should also be procured and evaluated during the proposed study. Current discussions also suggest there is a new laser wind sensor device that Michigan Aerospace Corporation has designed for the Air Force. Since this device may have potential application to ground-based weather observing systems such as the Juneau WHIS, procurement and test of this sensor should be considered.

Because wind sensor mounting fixtures and masts can influence the buildup of ice on and around the sensors, it is recommended that modifications to the design of the masts be investigated. Currently the Juneau wind system installation uses commercial heat tape to keep the wind sensor masts ice-free. It is suggested that the reliability and feasibility of this, and alternative technologies to keep sensors ice-free, be explored in the proposed study. Finally, in light of the fact that vertical wind components are likely to be present in the mountainous terrain where the Juneau WHIS sensors are mounted, it is suggested that the proposed effort also attempt to quantify sensor response to off-axis winds.

## 7. ACRONYMS AND ABBREVIATIONS.

AMS	Acquisition Management System
AWR	Aviation Weather Research
FAA	Federal Aviation Administration
ft	foot
FTP	File Transfer Protocol
in	inch
IP	Internet Protocol
kHz	kilohertz
kn	knot
LST	Local Standard Time
m	meter
m·s <sup>-1</sup>	meters per second
METAR	Aviation Routine Weather Report
mm	millimeter
mph	mile per hour
MWO	Mt. Washington Observatory
NCAR	National Center for Atmospheric Research
NEMA	National Electrical Manufacturers Association
OT	Operational Test
PC	personal computer
PDT	Product Development Team
s	second
Vdc	volts direct current
W	watt
WHIS	Wind Hazard Information System

**APPENDIX A**  
**DATA LOG AND SUMMARY**



# APPENDIX A

## DATA LOG AND SUMMARY

Date	Case	Weather	Wind		Temp (°C)	RH (%)
			Direction (deg)	Speed (kt)		
2/12	1	FZRA, FZFG, ICG	260	40	0	98
	2		220	35	7	77
	3	FZRA, FZFG, ICG	235	15	3	98
2/13	4	-SN, FZFG, ICG	270	20	-10	93
	5	FZFG, ICG	260	35	-14	89
	6	-SHSN, FZFG, ICG	270	30	-15	87
2/14	7	-SN, FZFG, ICG	300	09	-20	84
	8		340	20	-18	85
2/16	9		270	21	-6	80
2/17	10		260	16	-6	70
	11	-SN, FZFG, ICG	180	32	-8	94
2/18	12	FZFG, ICG	200	22	-7	94
	13	-SN, FZFG, ICG	260	25	-5	95
	14	FZFG, ICG	300	19	-11	91
2/19	15		300	08	-11	91
2/20	16		130	03	-11	89
	17		020	05	-8	77
	18	FZFG, ICG	360	06	-15	89
2/21	19	-SN, FZFG	340	20	-16	89
	20		340	12	-17	50
	21	FZFG, ICG	310	09	-20	82
2/22	22		320	15	-23	30
	23	DRSN	320	38	-24	47
2/23	24		320	44	-23	33
	25		340	13	-18	45
2/24	26		060	07	-17	63
	27		090	23	-15	45
2/25	28		100	22	-15	50
	29	-SN, -SHSN, ICG	060	12	-12	80
	30	-SN, BLSN, ICG	020	40	-11	90
2/26	31	-SN, BLSN, FZFG, ICG	340	45	-13	89
	32	FZFG, ICG	310	63	-14	88
2/27	33		310	53	-14	87
	34		310	12	-8	50
2/28	35		170	35	-7	92
	36	-SN, BLSN, FZFG, ICG	150	50	-9	92
3/1	37	FZRA, FZFG, GICG	150	42	-4	97
	38	-SN, FZRA, FZFG, GICG	180	12	-7	94
3/2	39	-SN, FZFG, ICG	240	22	-10	91
	40	-SN, BLSN, FZFG, ICG	270	46	-14	90
3/3	41	BLSN, FZFG, ICG	290	47	-14	88
	42		260	20	-9	93
	43	DRSN, BLSN, FZFG, ICG	180	48	-8	97

3/4	44	FZRA, FZFG, GICG	150	60	-1	99
	45	SN, FZFG, ICG	170	37	-9	95
	46	FZFG, ICG	230	18	-11	93
	47	-SN, FZFG, ICG	270	35	-15	90
3/5	48	-SN, FZFG, ICG	270	65	-20	83
	49	FZFG, ICG	290	65	-20	84
	50		290	35	-20	82
3/6	51		275	30	-20	83
	52	-SN, FZFG, ICG	230	19	-14	89
	53	-SN, FZFG, ICG	150	30	-15	88
3/7	54	-SN, FZFG, ICG	050	30	-17	87
	55	DRSN, BLSN, FZFG, ICG	310	50	-25	82
3/8	56	DRSN	320	67	-25	79
	57		320	68	-22	82
3/9	58		320	60	-20	83
	59		340	12	-15	85
3/10	60		330	13	-15	87
	61	FZFG, ICG	010	22	-10	92
3/11	62	FZFG, -SN, DRSN, FZDZ, ICG	010	22	-7	94
3/12	63	FZFG, ICG	020	38	-7	95
	64	FZFG, -SN, FZDZ, ICG	020	42	-6	96
	65	FZFG, -SN, ICG	050	30	-8	95
3/13	66	-SN, FZFG, ICG	050	15	-8	94
	67	FZFG, ICG	340	20	-8	95
3/14	68	FZFG, ICG	360	08	-10	93
	69	FZFG, ICG	190	05	-10	99
	70	-SN, FZFG, ICG	150	08	-10	97
3/15	71	-SN, FZFG, ICG	110	08	-11	92
	72	-SN, BLSN, FZFG, ICG	330	50	-12	93
3/16	73	BLSN, FZFG, ICG	320	75	-15	88
	74	DRSN, FZFG, ICG	280	72	-12	91
3/17	75	DRSN, FZFG, ICG	280	67	-9	93
	76		270	50	-5	95
3/18	77		260	40	-2	97
	78	-SN, FZFG, ICG	260	40	0	99
	79	-SN, BLSN, FZFG, ICG	270	60	-9	95
3/19	80	-SN, BLSN, FZFG, ICG	280	56	-13	93
	81	BLSN, FZFG, ICG	290	57	-13	91
	82	-SN, BLSN	300	46	-13	91
3/20	83	-SN, BLSN, FZFG, ICG	290	40	-14	89
	84	FZFG, ICG	290	37	-13	88
	85		310	08	-12	90
3/21	86		220	12	-14	89
	87	-SN, DRSN, BLSN, FZFG, ICG	170	50	-10	93

## APPENDIX B

### TABLES OF RESULTS AND HOURLY SUMMARIES

**DATE = 0212**

00-01	0	74 34	276 24 14 2	268 23 9 2	000 0	8 9	1 1	0 0	0 0	0 0	0 0	0 1	99 1
01-02	0	24	272 23 11 2	265 22 15 2	000 0	7 9	1 1	0 0	0 0	0 0	0 0	1 1	98 1
02-03	0	23	271 22 19 2	263 22 15 2	000 0	7 9	1 1	0 0	0 0	0 0	0 0	2 2	98 1
03-04	0	23	272 23 14 2	264 22 22 2	000 0	8 10	1 1	0 0	0 0	0 0	0 0	2 2	98 1
04-05	0	21 1	271 23 21 2	264 23 24 2	000 0	7 9	1 1	0 0	0 0	0 0	0 0	3 3	98 1
05-06	0	19	269 20 12 2	262 20 10 2	000 0	6 10	1 1	0 0	0 0	0 0	0 0	2 2	98 1
06-07	0	18 1	261 20 13 2	254 20 11 2	000 0	7 12	1 1	0 0	0 0	0 0	0 0	3 3	96 2
07-08	0	17 1	254 23 18 3	247 22 18 3	000 0	7 13	0 1	0 0	0 0	0 0	0 0	5 5	87 2

# Mt. Washington Data

08-09 125	16	245 25 15 2	238 25 22 3	234 24 4 3	7 0	6 2 12 1	-1 2 12 1	6 81 1 1
09-10	16	246 26 12 3	238 26 19 3	237 24 4 3	8 0	9 2 11 1	1 2 12 1	6 76 2 2
10-11	16	241 23 16 3	235 23 14 3	234 21 7 4	6 0	8 2 13 1	1 1 14 1	6 78 4 4
11-12	16	235 23 16 3	226 23 16 3	226 21 7 3	9 0	9 2 14 2	0 2 15 2	6 85 1 1
12-13 248	16	244 27 19 3	235 27 14 3	234 25 6 3	9 0	8 2 11 2	-1 2 12 2	7 77 3 3
13-14 0	16 1	244 27 12 3	236 27 13 3	000 0	7 0	0 0 0 0	0 0 0 0	7 75 5 5
14-15 0	17	241 28 22 3	233 28 18 3	000 0	8 0	0 0 0 0	0 0 0 0	7 88 2 2
15-16 0	18	230 27 20 3	222 26 32 3	000 0	8 0	0 0 0 0	0 0 0 0	6 88 2 2
16-17 210 ( 0.0)	19	230 28 20 4	220 28 23 4	221 26 8 4	10 0	11 4 21 2	0 3 19 2	5 88 1 5
17-18 ( 0.1)	21 1	236 27 35 4	229 26 23 4	227 24 10 4	7 0	9 3 16 2	2 3 18 2	3 96 2 2
18-19	23	219 18 31 5	213 18 34 4	211 16 21 5	6 0	8 3 27 2	2 2 28 2	2 98
19-20	23	195 17 51 3	190 17 69 3	186 14 28 4	6 0	8 3 36 2	3 3 34 2	3 98
20-21 160 ( 0.1)	23	198 19 52 4	189 19 60 4	177 16 27 4	10 0	8 3 34 2	0 3 37 2	3 98
21-22 0	48 33	216 12 47 4	208 11 53 4	000 0	8 0	0 0 0 0	0 0 0 0	1 98 1 1
22-23 0	58 33	198 14 41 4	192 14 38 5	000 0	6 0	0 0 0 0	0 0 0 0	0 99 1 1
23-24 0	97 5	251 10 33 3	243 9 35 3	000 0	8 1	0 0 0 0	0 0 0 0	-6 97 1 1

**DATE = 0213**

00-01	0	98	269 11 24 2	262 10 24 3	000 0	7 1 10	0 0 0 0	0 0 0 0	-8 94 1 2
01-02	0	30 45	275 12 34 3	267 11 35 3	000 0	7 1 11 1	0 0 0 0	0 0 0 0	-7 95 2 3
02-03	0	30 44	280 12 31 2	274 12 22 3	000 0	6 1 8	0 0 0 0	0 0 0 0	-8 92 2 1
03-04	0	94 16	301 16 57 3	295 16 52 3	000 0	6 1 6 1	0 0 0 0	0 0 0 0	-11 91 1 1
04-05	0	87 25	309 19 19 2	300 19 16 2	000 0	9 0 7 1	0 0 0 0	0 0 0 0	-11 91 1 1
05-06	0	98	325 19 16 2	298 18 12 2	000 0	27 1 12 1	0 0 0 0	0 0 0 0	-12 91 1 1
06-07	0	99	307 28 45 5	301 28 8 5	000 0	6 1 35 1	0 0 0 0	0 0 0 0	-12 90 1 1
07-08	0	98	264 30 66 4	307 30 21 4	000 0	-28 0 41 1	0 0 0 0	0 0 0 0	-13 89 1 1

# Mt. Washington Data

08-09	0		99	343 27 46 2	296 27 9 2	000 0	48 1 43 1	0 0 0	0 0 0	-13 90
09-10	0		99	195 28 133 2	282 27 18 2	000 0	9 0 74 1	0 0 0	0 0 0	-13 90
10-11	0		99	200 27 113 3	278 27 9 3	000 0	-9 0 81 1	0 0 0	0 0 0	-13 89
11-12	0		98	204 23 89 2	273 23 13 2	000 0	-41 0 81 1	0 0 0	0 0 0	-13 90
12-13	0		99	175 23 120 2	273 23 9 2	000 0	-34 0 102 1	0 0 0	0 0 0	-13 90
13-14	0		99	183 20 95 2	270 20 14 2	000 0	-48 0 101 1	0 0 0	0 0 0	-12 90
14-15	265		99	272 23 99 3	272 22 27 2	272 21 11 2	-37 0 109 1	-17 2 110 1	1 1 8 1	-13 89
15-16	( 0.0)		99	086 25 111 2	277 25 8 2	275 23 4 2	-22 0 111 1	-14 2 110 1	2 2 7 1	-13 89
16-17	295 ( 1.0)		99	091 26 113 4	277 26 12 4	277 24 5 4	-29 1 106 1	-9 3 103 1	1 2 7 1	-14 89
17-18	( 1.9)		99	267 24 129 4	282 24 12 4	280 22 7 4	-33 1 104 1	-18 3 102 1	2 2 8 1	-14 88
18-19	( 20.7)		99	079 21 94 5	295 21 24 5	291 18 23 5	50 1 85 1	51 3 87 2	4 2 9 2	-15 87 1 1
19-20	( 6.0)		99	072 30 94 3	304 29 10 3	300 25 7 3	3 1 107 1	8 5 107 1	5 4 8 1	-17 86
20-21	277 ( 5.6)		99	182 29 107 4	309 29 12 4	303 26 8 3	-39 1 105 1	-33 5 104 1	5 4 8 2	-17 86
21-22	231 ( 0.2)		99	191 23 112 3	306 22 22 3	301 20 5 2	-40 1 101 1	-34 3 101 1	5 2 6 1	-18 85
22-23	( 3.3)		98	158 17 110 4	303 17 17 4	300 15 14 4	-6 1 97 1	-3 2 97 1	4 2 8 1	-18 85
23-24			99	039 14 19 2	303 13 15 2	300 12 15 2	95 1 27 1	95 2 40 1	2 1 6 1	-19 84

# Mt. Washington Data

DATE = 0214

2355 140455Z 30008KT 1/4SM **FZFG** BKN000 M20/M20 RMK **FZFG** BKN000 **FZFG** INTMT LGT **ICG**  
0051 140551Z 30011KT 3/8SM **FZFG** SCT000 M20/M20 RMK **FZFG** SCT000 **FZFG** INTMT VRY LGT **ICG**  
0157 140657Z 30010KT OSM **-SN FZFG** VV000 M20/M20 RMK **SNB20** LGT **ICG**  
0256 140756Z 30011KT OSM **-SN FZFG** VV000 M20/M20 RMK LGT **ICG** PCPN VRY LGT  
0349 140849Z 30010KT OSM **-SN FZFG** VV000 M21/M21 RMK LGT **ICG**  
0450 140950Z 30010KT OSM **-SN FZFG** VV000 M21/M21 RMK LGT **ICG**  
0551 141051Z 30009KT 1/2SM **FZFG** SCT000 M21/M21 RMK **SNE15** **FZFG** SCT000 **FZFG** INTMT  
0648 141148Z 30008KT 1/8SM **FZFG** FEW000 M22/M22 RMK VIS NE 30 **FZFG** FEW000 **FZFG** INTMT  
0750 141250Z 30007KT 35SM SCT/// SKC M20/M25 RMK HZ DSNT ALQDS TPS LWR SCT050 S-NE  
0855 141355Z 31005KT 35SM SCT/// SKC M21/M26 RMK HZ DSNT ALQDS TPS LWR SCT050 S-NE  
\*0955 141455Z 30002KT 40SM SCT/// SKC M19/M24 RMK TPS LWR SCT050 ALQDS  
1052 141522Z VRB02KT 40SM SCT/// SKC M19/M24 RMK TPS LWR SCT050  
1152 141652Z 34013KT 40SM SCT/// SKC M18/M22 RMK TPS LWR SCT050  
1249 141749Z 35010KT 40SM SCT/// FEW180 M19/M22 RMK TPS LWR SCT050 S-N  
1357 141857Z 35023G31KT 40SM SCT/// SCT180 M18/M21 RMK TPS LWR SCT050  
1455 141955Z 34020KT 35SM SCT/// SCT180 M19/M23 RMK TPS LWR SCT050  
1550 142050Z 35017G27KT 40SM FEW/// SCT180 M18/M22 RMK TPS LWR FEW045 S-W  
1656 142156Z 2156 35026KT 40SM FEW/// SCT180 M19/M23 RMK TPS LWR FEW045 S-NW  
1759 142259Z 34030G35KT 40SM FEW/// SKC M18/M23 RMK TPS LWR FEW045 S-NW  
1852 142352Z 34031KT 40SM FEW/// SKC M18/M22 RMK TPS LWR FEW045  
1955 150055Z 34026KT 65SM FEW/// SKC M18/M21 RMK TPS LWR FEW040  
2055 150155Z 34024G31KT 65SM SKC M17/M22  
2150 150250Z 34025G32KT 65SM SKC M16/M23  
2251 150351Z 00028G37KT 65SM SKC M15/M24  
2357 150457Z 32027G34KT 65SM SKC M17/M23  
0049 150549Z 34027G34KT 65SM SKC M17/M23

00-01	99	042 14	302 13	300 11	99	1	102	2	2	1	-19	84
		53 2	11 2	14 2	27	1	20	1	6	1		
01-02	99	044 12	303 12	301 10	95	1	100	2	2	1	-19	84
		15 2	15 2	12 2	45	1	32	1	7	1		
02-03	99	072 13	307 12	304 11	67	1	73	2	3	1	-19	84
		67 2	18 2	13 2	83	1	77	1	11	1		
03-04	99	051 12	308 12	305 10	99	1	102	2	3	1	-19	84
		17 2	15 2	13 2	37	1	37	1	7	1		
04-05	99	062 12	294 11	293 10	25	1	35	2	1	1	-20	83
		78 3	34 3	26 2	114	1	106	1	7	1		
05-06	99	032 11	286 11	285 10	65	1	73	1	1	1	-20	83
		14 2	15 2	12 2	112		104	1	7	1		
06-07	98	017 10	270 9	270 9	-30	1	-32	1	0	0	-21	82
		17 2	14 2	12 2	172		173	1	8	1		
07-08	98	013 7	265 6	265 6	-67	1	-56	0	0	0	-20	83
		23 2	22 2	20 2	178	1	178	1	7	1		1



# Mt. Washington Data

08-09	99	016 7	262 6	261 6	-52 1	-56 0	0 0	0 0	-18 84
		31 2	19 2	22 1	175	174 1	6 1		1 1
09-10	99	001 5	263 5	250 5	-49 1	-40 0	13 -1	-18 84	1 1
		15 2	43 2	19 2	172 1	181 1	39 1		1 1
10-11	99	006 4	299 3	281 4	19 1	42 0	16 -1	-14 88	1 1
		16 2	53 2	95 1	113 1	112 1	40 1		1 1
11-12 185	99	320 8	349 8	340 7	-26 0	-3 1	4 1	-12 89	
		57 2	28 2	19 2	55	53 1	12 1		
12-13 0	99	295 10	344 11	000 0	-41 0	0 0	0 0	-14 88	
		59 2	24 2		76 1				
13-14 0	99	288 14	342 15	000 0	-36 -1	0 0	0 0	-15 87	1 1
		92 4	22 4		111 1				
14-15 164	99	283 14	345 15	339 13	-31 -1	-55 1	6 2	-15 87	
		139 2	21 3	18 2	139 1	106 1	14 1		
15-16	99	288 11	348 12	346 10	-44 0	-56 1	2 1	-15 86	
		110 3	28 3	27 3	97 1	91 2	16 2		
16-17	99	284 10	002 10	004 10	-62 0	-65 0	-2 1	-17 85	
		65 2	48 2	40 3	49 1	47 1	19 1		
17-18	97	274 12	001 13	002 12	-47 -1	-51 0	-1 1	-18 84	
	6	74 3	18 3	15 3	94 1	85 1	13 1		
18-19 206	97	286 15	003 16	004 15	-70 -1	-60 0	-3 1	-19 84	
	6	32 2	18 2	7 2	55 1	86 1	10 1		
19-20 0	99	290 13	009 14	000 0	-63 -1	0 0	0 0	-18 84	
		43 1	13 2		59 1				
20-21 0	97	270 16	358 17	000 0	-42 -1	0 0	0 0	-18 85	
	8	94 3	18 3		119 1				
21-22 0	99	286 15	357 16	000 0	-51 -1	0 0	0 0	-17 85	
		69 3	26 3		90 1				
22-23 0	99	264 15	359 16	000 0	-24 -1	0 0	0 0	-17 85	
		99 3	36 4		130 1				
23-24 0	99	276 16	354 17	000 0	-35 -1	0 0	0 0	-17 84	
		102 3	18 4		120 1				

**DATE = 0216**

00-01	0	24 1	284 7	18 1	278 8	18 1	000 0	6 6	1 1	0 0	0 0	0 0	-7 80
01-02	0	24	289 6	20 2	282 8	19 2	000 0	7 5	0 1	0 0	0 0	0 0	-7 75
02-03	0	24	282 11	18 2	276 18	17 2	000 0	6 6	0 1	0 0	0 0	0 0	-8 80
03-04	0	24	293 8	22 2	287 10	22 2	000 0	6 5	0 1	0 0	0 0	0 0	-7 80
04-05	0	23	292 8	21 2	285 11	20 2	000 0	6 4	0 1	0 0	0 0	0 0	-7 80
05-06	0	24	291 12	20 2	285 11	20 2	000 0	6 4	0 1	0 0	0 0	0 0	-8 84
06-07	0	24	302 12	22 2	296 11	21 2	000 0	6 6	0 1	0 0	0 0	0 0	-8 87
07-08	0	23 1	297 8	18 2	291 13	17 2	000 0	7 4	0 1	0 0	0 0	0 0	-7 87

# Mt. Washington Data

08-09	0	22	306 18 9 2	300 17 10 2	000 0	6 0 7 1	0 0 0 0	0 0 0 0	-6	84 2
09-10	159	21	305 18 4 2	298 18 5 2	296 15 4 2	7 0 5 1	8 2 3 1	1 1 4 1	-5	78 2
10-11		19	302 15 8 1	296 15 3 1	295 13 3 1	7 0 3 1	8 2 2 1	1 1 3 1	-4	73 1
11-12		19	296 20 4 2	290 19 4 2	288 17 3 2	7 0 3 1	8 2 3 1	1 2 3 1	-3	71 1
12-13		19	296 20 7 1	289 19 5 1	288 17 5 1	7 0 4 1	8 2 5 1	2 2 4 1	-2	74 1
13-14		19	290 20 13 2	283 20 11 2	282 18 5 2	6 0 5 1	8 2 6 1	2 2 5 1	-2	76 1
14-15		20	286 20 6 1	280 19 6 1	278 18 5 1	6 0 5 1	8 2 5 1	2 2 5 1	-3	76 1
15-16		22	283 19 7 2	277 19 10 2	275 18 7 2	6 0 6 1	8 2 7 1	2 1 6 1	-4	76 2
16-17		23	282 17 10 2	276 17 10 2	274 16 9 2	6 0 6 1	8 2 7 1	2 1 7 1	-5	81 2
17-18		24	284 18 13 2	278 18 19 2	276 16 23 2	6 0 6 1	8 2 6 1	2 1 6 1	-6	86 1
18-19		24	284 19 10 2	278 19 10 2	276 17 4 2	6 0 6 1	8 2 6 1	2 1 6 1	-6	85 1
19-20		24	284 17 7 2	278 17 9 2	276 16 5 2	6 0 5 1	8 2 6 1	2 1 5 1	-6	81 1
20-21		23	282 13 17 2	276 12 13 2	274 12 12 2	6 0 5 1	8 1 5 1	2 1 5 1	-6	80
21-22		24	285 13 8 1	279 13 8 1	277 12 4 1	6 0 6 1	8 1 6 1	2 1 6 1	-7	79 1
22-23		24	284 12 14 2	278 12 8 2	277 11 6 2	6 0 5 1	8 1 7 1	2 1 6 1	-7	78 1
23-24		23	275 11 11 2	270 11 10 2	268 10 7 2	5 0 7 1	7 1 7 1	2 1 7 1	-7	76 1

# Mt. Washington Data

DATE = 0217

2357 170457Z 26013KT 30SM SCT160 M07/M09  
0051 170551Z 26012KT 30SM BKN160 M07/M09  
0157 170657Z 26016KT 30SM OVC160 M06/M09  
0257 170757Z 26015KT 30SM OVC150 M05/M09  
0357 170857Z 26012KT 30SM SCT150 M06/M09  
0453 170953Z 23008KT 30SM SCT150 M06/M09  
0553 171053Z 22010KT 30SM SCT150 M06/M09  
0647 171147Z 21011KT 30SM SCT050 BKN150 M07/M10  
0750 171250Z 18015KT 30SM FEW010 BKN050 OVC150 M07/M09  
0852 171352Z 16017G24KT 30SM OVC015 M05/M08  
1052 171552Z 16029G35KT 35SM SCT150 OVC150 M07/M10  
1148 171648Z 16031G37KT 35SM SCT150 OVC010 M09/M11 RMK TPS LMR SCT040 N-S  
1250 171750Z 16036G46KT 35SM BKN150 OVC005 M09/M10 RMK TPS LMR BKN045  
1356 171856Z 18029G35KT 0SM -SN FZFG VV000 M08 RMK SNB30 LGT ICG  
1458 171958Z 17035G44KT 1/16SM -SN FZFG VV000 M10/M10 RMK LGT ICG  
1559 172059Z 17033G46KT 1/16SM -SN FZFG VV000 M10/M10 RMK LGT ICG  
1654 172154Z 16030G43KT 1/16SM -SM FZFG VV000 M08/M08 RMK LGT ICG  
1758 172258Z 16030G41KT 1/16SM -SM FZFG VV000 M08/M08 RMK LGT ICG  
1859 172359Z 18035G46KT 1/16SM -SN FZFG VV000 M08/M08 RMK LGT ICG  
1957 180057Z 17027G38KT 1/16SM -SN FZFG VV000 M10/M10 RMK LGT ICG  
2054 180154Z 18037G43KT 1/16SM -SN FZFG VV000 M08/M08 RMK LGT ICG  
2153 180253Z 18037G41KT 1/16SM -SN FZFG VV000 M08/M08 RMK LGT ICG  
2256 180356Z 18041G49KT 1/16SM FZFG VV000 M08 RMK SNE35 LGT ICG  
2359 180459Z 18037G46KT 1/16SM FZFG VV000 M08/M08 RMK LGT ICG  
0053 180553Z 18030G35KT 1/16SM FZFG VV000 M09/M09 RMK LGT ICG

00-01	23	272	8	267	8	264	7	6	0	9	1	3	0	-7	77
		21	1	18	1	14	1	7		7	1	8	1		
01-02	23	267	8	261	8	259	8	6	0	8	1	2	0	-6	75
		12	2	10	2	11	2	8		8	1	8	1		2
02-03	23	273	11	268	11	265	10	5	0	8	1	3	0	-5	70
		11	1	11	1	4	1	7		7	1	6	1		1
03-04	23	260	9	255	8	252	8	5	0	8	1	3	0	-6	70
		15	2	20	2	19	2	6		5	1	6	1		2
04-05	23	224	6	217	5	215	6	7	1	9	0	2	-1	-6	71
		18	1	17	1	17	1	7		7	1	7	1		1
05-06	23	222	6	214	6	213	6	7	1	9	0	1	-1	-6	67
		16	1	17	2	13	1	9		9	1	8	1		1
06-07	23	208	10	201	10	201	10	7	0	7	1	0	1	-6	69
		30	2	24	2	22	2	15		13	1	12	1		1
07-08	24	177	15	174	15	172	14	3	0	5	1	2	1	-6	70
		13	1	14	1	11	2	10		12	1	10	1		1

# Mt. Washington Data

08-09	23	182 17 16 1	178 17 11 1	176 16 7 2	5 0 11	7 1 11 1	2 1 10 1	-5 70 1 1
09-10	24	173 19 11 3	170 19 11 3	166 18 8 3	3 0 8 1	7 1 8 1	4 1 7 1	-6 70 1 2
10-11	24 1	170 23 9 2	167 23 7 2	164 22 5 2	3 0 8 1	6 1 8 1	3 1 7 1	-6 66 1 3
11-12	25	168 25 7 3	165 24 7 3	162 23 4 3	3 0 8 1	7 1 7 1	4 1 7 1	-8 76 4 4
12-13	25 1	168 30 8 2	165 30 11 2	161 28 4 3	3 0 9 1	7 2 8 1	4 2 8 1	-8 74 1 6
13-14	95 13	169 24 14 3	166 24 8 3	163 23 4 3	3 0 9 1	6 1 9 1	3 1 8 1	-9 95 1 2
14-15	90 23	170 22 13 2	166 22 11 2	162 21 8 2	4 0 11 1	8 1 11 1	4 1 10 1	-8 93 1 2
15-16	( 0.4) 81 30	164 27 12 3	161 26 10 3	157 25 7 3	3 0 12 1	7 2 11 1	4 1 9 1	-10 92 1 1
16-17	( 0.2) 98	171 27 14 3	166 26 10 3	161 25 6 3	4 0 12 1	9 1 12 1	5 1 8 1	-8 93 1 1
17-18	98	168 26 19 3	164 25 12 3	161 24 7 3	4 0 11 1	7 1 11 2	3 1 9 1	-8 93 2 2
18-19	( 0.5) 98	165 25 26 3	161 24 11 3	158 23 7 3	4 0 12 1	8 2 11 1	3 1 9 1	-8 93 1 2
19-20	( 0.2) 98	163 24 15 3	157 24 15 3	154 21 6 3	6 0 13 1	8 2 12 1	2 2 9 1	-9 92 1 1
20-21	( 0.5) 98	184 24 27 5	162 24 12 5	159 22 8 5	22 0 18 1	26 2 18 1	3 2 10 2	-9 93 1 1
21-22	( 0.6) 98	196 30 22 2	168 30 9 2	164 28 7 3	29 0 21 1	32 2 22 1	4 1 9 1	-7 94 1 1
22-23	( 0.6) 98	200 31 30 3	170 30 11 3	166 29 6 3	31 0 29 1	35 2 29 1	4 2 10 1	-7 94 1 1
23-24	( 0.3) 98	195 28 39 2	171 28 12 2	166 27 4 2	24 0 38 1	29 2 38 1	5 2 10 1	-7 94 1 1



# Mt. Washington Data

08-09	98	193	13	244	14	240	12	-51	0	-48	1	3	1	-4	97
			1	20	2	8	2	14		8	1	12	1		
09-10	98	193	14	255	15	251	13	-62	0	-59	1	3	2	-4	96
			2	12	2	13	2	12		6	1	11	1		
10-11	98	193	16	264	17	262	15	-71	-1	-69	1	1	2	-4	96
			2	14	2	16	2	12	1	7	1	10	1		
11-12	98	193	14	258	15	255	13	-65	0	-62	1	3	2	-5	96
			1	15	1	5	1	11		4	1	11	1		
12-13	98	193	16	262	17	259	14	-69	-1	-66	1	3	2	-4	96
			2	12	2	8	2	12	1	6	1	11	1		
13-14	98	193	17	273	18	274	16	-80	-1	-81	1	-1	2	-5	96
			2	25	2	8	2	10	1	7	1	8	1		
14-15	98	193	19	281	20	283	18	-89	-1	-90	2	-2	2	-5	95
			1	5	1	4	1	5	1	4	1	4	1		
15-16	98	193	22	285	22	287	20	-92	-1	-94	2	-2	3	-6	94
			2	8	2	15	2	6	1	5	1	5	1		
16-17	98	193	22	289	22	291	19	-96	0	-99	2	-2	3	-7	94
			2	5	2	5	2	5	1	4	1	4	1		
17-18	98	193	15	294	15	296	13	-101	0	-103	2	-2	1	-7	94
			3	9	3	8	2	9	1	7	1	5	1		
18-19	98	193	18	302	18	303	16	-108	0	-110	2	-1	2	-8	93
			2	23	2	15	2	20	1	9	1	7	1		
19-20	98	193	16	290	16	291	14	-97	0	-98	2	-2	2	-9	93
			3	22	3	20	3	9	1	7	1	5	1		
20-21	98	193	17	278	17	279	14	-86	-1	-86	2	0	3	-10	92
			2	7	2	6	2	6	1	5	1	5	1		
21-22	( 27.8)	98	193	18	278	18	277	15	-85	0	-84	3	1	-10	92
			2	7	2	5	2	7		5	1	6	1		
22-23	( 36.5)	98	193	18	277	18	277	14	-84	0	-84	4	0	-11	91
			2	7	2	8	1	6		4	1	5	1		
23-24	( 7.6)	98	193	19	280	18	276	14	-87	0	-83	4	3	-11	91
			2	8	2	7	2	8		5	1	6	1		

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2354	190454Z	30020KT	30SM	BKN///	SCT010	M08/M15	RMK	TPS	LWR	BKN050	INTMT	FZFG	AURBO
0053	190553Z	30018KT	20SM	BKN///	SCT010	M08/M16	RMK	TPS	LWR	BKN050			
0153	190653Z	30008KT	20SM	BKN///	FEW010	OVC120	M08/M14	RMK	TPS	LWR	BKN050		
0256	190756Z	33009KT	20SM	BKN///	FEW010	BKN120	M06/M15	RMK	TPS	LWR	BKN050		
0359	190859Z	31010KT	20SM	BKN///	FEW010	BKN120	M08/M14	RMK	TPS	LWR	BKN050		
0455	190955Z	31008KT	20SM	SCT///	FEW010	BKN120	M07/M14	RMK	TPS	LWR	BKN050		
0558	191058Z	31004KT	30SM	SCT///	FEW010	BKN120	M07/M14	RMK	TPS	LWR	SCT045		
0654	191154Z	31006KT	30SM	FEW///	SCT030	BKN120	M07/M14	RMK	TPS	LWR	FEW030		
0750	191250Z	30006KT	30SM	SCT060	BKN120	M07/M13							
0852	191352Z	31003KT	30SM	FEW///	SCT030	BKN100	M06/M13	RMK	TPS	LWR	FEW040		
0956	191456Z	31005KT	30SM	SCT///	SCT040	SCT100	M06/M13	RMK	TPS	LWR	SCT040		
1158	191658Z	27004KT	40SM	BKN///	FEW040	FEW100	M07/M12	RMK	TPS	LWR	BKN040		
1254	191754Z	27007KT	40SM	BKN///	FEW100	M08/M13	RMK	TPS	LWR	BKN045			
1346	191846Z	26005KT	40SM	BKN///	FEW120	M07/M13	RMK	TPS	LWR	BKN050			
1455	191955Z	26008KT	40SM	BKN///	FEW100	M07/M13	RMK	TPS	LWR	BKN045			
1556	192056Z	27006KT	40SM	BKN///	FEW100	M08/M13	RMK	TPS	LWR	BKN055			
1650	192150Z	26008KT	30SM	BKN///	FEW020	FEW060	M08/M13	RMK	TPS	LWR	BKN045	DSNT	HZ SE-NW
1754	192254Z	30010KT	30SM	SCT///	FEW030	FEW100	M08/M13	RMK	TPS	LWR	SCT050		
1850	192350Z	30009KT	30SM	FEW///	FEW030	M09/M13	RMK	TPS	LWR	FEW045			
1952	200032Z	30004KT	40SM	FEW///	FEW030	M08/M16	RMK	TPS	LWR	FEW040			
2056	200156Z	30003KT	40SM	FEW///	SKC	M08/M16	RMK	TPS	LWR	FEW040			
2156	200256Z	30004KT	40SM	FEW///	SKC	M07/M14	RMK	TPS	LWR	FEW040			
2254	200354Z	30004KT	40SM	FEW///	SKC	M06/M19	RMK	TPS	LWR	FEW040			
2353	200453Z	30004KT	40SM	FEW///	SKC	M05/M20	RMK	TPS	LWR	FEW040			
0055	200555Z	30005KT	40SM	FEW///	SKC	M07/M17	RMK	TPS	LWR	FEW040			
2051	200151Z	12002KT	40SM	FEW///	FEW010	M07/M17	RMK	TPS	LWR	FEW040			
00-01	98	193 17	286 17	282 14	-93	0	-89	3	4	3	-11	91	
		2	6 2	3 1	5	1	2	1	5	1			
01-02	98	193 10	302 10	300 8	-106	0	-107	1	2	1	-11	91	
		3	31 4	30 3	37		22	1	6	1			
02-03	98	193 6	301 5	293 5	-107	0	-99	0	8	0	-10	91	
		2	46 3	43 2	28	1	28	1	22	1			
03-04	98	193 7	278 7	277 7	-85	0	-84	0	1	0	-11	91	
		2	29 2	32 2	19		20	1	5	1			
04-05	98	197 4	283 4	257 5	-86	1	-60	0	26	-1	-11	91	
		25 2	42 3	32 2	37	1	49	1	49	1			
05-06	98	219 3	309 2	266 3	-90	1	-46	0	43	-1	-11	91	
		62 2	33 2	62 2	50		83	1	58	1			
06-07	98	217 2	319 1	267 2	-102	1	-50	-1	52	-2	-11	91	
		60 1	40 1	101 1	53	1	74	1	54	1			
07-08	98	214 2	323 1	275 2	-108	1	-61	-1	48	-2	-10	92	
		56 1	61 1	53 1	60	1	83	1	55	1			



# Mt. Washington Data

08-09	98	193	4	189	4	183	4	4	0	10	0	6	0	-8	93
		1	19	1	21	1	16	16	0	17	0	6	1	1	1
09-10	83	196	2	262	1	211	3	-66	1	-15	-1	51	-2	-6	95
	34	21	1	116	1	58	1	73	1	41	1	55	1	1	1
10-11	5	193	3	242	2	237	4	-49	1	-44	0	5	-1	-3	97
	7	1	17	1	16	1	14	14	12	12	12	12	1		
11-12	16	193	4	246	4	242	5	-53	1	-49	0	4	-1	-3	97
	11	1	13	1	10	1	10	10	9	9	1	3	1		
12-13	20	193	6	260	5	257	5	-67	0	-64	0	3	0	-4	96
	1	1	10	1	12	1	7	7	8	8	3	3			
13-14	18	193	5	259	5	256	5	-67	0	-63	0	3	0	-4	95
	1	1	7	1	7	1	7	7	7	7	2	2			
14-15	18	193	7	266	6	264	6	-73	0	-71	0	2	0	-5	95
	1	1	10	1	11	1	6	6	7	7	2	2			
15-16	20	193	6	266	5	264	5	-73	1	-71	0	2	0	-6	95
	1	1	8	1	9	1	7	7	8	8	2	2			
16-17	23	193	7	273	7	272	7	-80	0	-80	0	0	0	-7	93
	1	1	12	1	12	1	4	4	5	5	2	2		1	
17-18	24	193	10	287	10	288	9	-95	0	-95	1	0	1	-10	91
		2	20	1	22	1	9	9	9	9	1	3	1	1	
18-19	25	193	9	298	8	298	8	-105	0	-105	1	0	1	-11	91
		1	7	1	6	1	7	7	6	6	1	4	1		
19-20	25	251	2	323	1	255	2	-72	1	6	0	68	-1	-11	91
		94	2	42	2	94	1	63	1	109	1	96	1		
20-21	25	294	1	322	0	103	1	-28	0	73	-1	44	-1	-11	91
		123	1	69	1	83	1	71	113	113	1	124	1		
21-22	25	251	1	345	0	040	2	-74	1	32	-1	34	-2	-11	90
		118	1	7	105	1	95	95	1	132	1	75	1		
22-23	24	301	0	345	0	109	1	-26	0	114	-1	94	-1	-12	90
		128	1	5	1	131	1	80	119	119	122	1			
23-24	24	325	0	343	0	167	1	-18	0	136	-1	153	-1	-11	90
		52			62	1	49	49	78	78	79	1			

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# Mt. Washington Data

09-10	22 1	193	2	022	2	029	3	122	1	163	-1	-7	-2	-8	87
			1	35	1	29	1	110		24	1	13	1		2
10-11	18 1	193	3	044	3	047	4	142	0	146	-1	-3	-1	-6	77
			2	63	2	23	1	46		19	1	8	1	1	6
11-12	20 1	193	7	066	8	070	7	127	0	123	0	-4	0	-7	63
			1	6	1	4	1	4	1	3	1	3		2	2
12-13	20	256	2	076	7	080	7	40	-4	42	-4	-5	0	-7	58
		98	3	12	1	10	1	106	2	108	2	6	1		3
13-14	22 1	337	0	066	8	071	8	-73	-8	-78	-7	-4	0	-7	57
		147		8	1	6	1	43	1	43	1	5	1		3
14-15	22 1	318	1	088	9	092	8	51	-8	99	-7	-4	1	-7	67
		61	3	27	1	25	1	155	3	154	3	4	1	1	7
15-16	24	307	1	106	8	112	7	201	-7	196	-6	-6	1	-9	77
		131	3	8	1	9	1	65	2	65	2	5			1
16-17	25	340	0	111	8	116	7	229	-8	224	-7	-5	1	-10	75
		22		11	1	10	1	23	1	23	1	2	1		2
17-18	26	343	0	094	4	075	5	30	-4	29	-5	-3	-1	-12	79
				82	2	49	1	140	2	145	1	41	1	1	5
18-19	26	343	0	016	1	068	3	-33	-1	-25	-3	7	-2	-14	86
				56	1	63	1	35	1	86	1	75	1		2
19-20	26 2	343	0	338	1	310	3	5	-1	34	-3	28	-1	-14	87
				12	2	37	2	11	2	27	2	30	1		3
20-21	35 2	343	0	320	1	301	3	23	-1	43	-3	20	-2	-14	91
				41	1	41	1	39	1	41	1	38	1		2
21-22	39 1	343	0	343	1	331	3	1	-1	12	-3	11	-1	-15	89
				14	2	32	1	13	2	31	1	30	1		1
22-23	44 2	343	0	347	3	343	4	-3	-3	0	-4	4	-1	-15	89
		8		15	2	18	1	19	2	16	1	14	1		
23-24	49 1	343	0	349	7	342	7	-6	-7	1	-7	7	0	-15	89
				37	1	13	1	16	1	7	1	14	1		

## DATE = 0221

00-01	54 1	317 63	1 3	331 17	8 3	327 12	7 2	-13 58	-7 2	-10 58	-6 2	5 11	0 1	-15 88
01-02	60 2	227 71	12 7	326 14	16 2	324 8	14 2	-91 75	-4 5	-97 63	-2 6	2 10	2 1	-15 89
02-03	62 2	193 2	18 2	325 21	18 2	323 10	16 2	-128 35	0 1	-131 8	2 1	1 7	2 1	-16 88
03-04	61 1	193 2	20 3	329 24	20 3	327 23	18 3	-125 55	0 1	-134 8	2 1	2 11	2 1	-16 87
04-05	66 4	193 3	13 3	341 27	14 4	338 17	12 4	-94 116	-1 1	-115 91	1 2	3 14	1 2	-16 86 1
05-06	37 7	237 82	5 4	333 21	7 2	330 18	7 2	-66 107	-3 2	-88 85	-2 3	3 12	0 1	-18 84
06-07	27	335 35	0 1	340 24	3 2	338 28	4 2	5 46	-3 2	13 49	-4 2	2 16	-1 1	-19 84 1
07-08	26	331 43	0 2	360 16	7 2	002 15	7 2	-9 52	-7 2	-6 55	-7 2	-3 15	0 1	-17 85 1

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08-09	26	311 133	1 2	357 24	8 2	358 34	8 2	-5 83	-8 2	5 87	-7 3	-1 20	0 1	-15 74	7
09-10	26	324 54	0 1	001 12	10 2	006 11	10 2	-9 66	-10 2	-2 68	-9 2	-4 9	0 1	-15 49	3
10-11	26	321 58	0 1	008 18	10 1	012 10	10 1	-15 70	-10 1	-8 74	-10 2	-4 8	0 1	-14 46	2
11-12	24 1	343	0	019 23	7 3	022 9	7 2	-35 11	-7 3	-38 8	-7 2	-3 8	0 1	-13 40	4
12-13	23 1	343	0	340 55	5 1	340 59	5 1	5 33	-5 1	4 34	-5 1	0 8	0 1	-11 49	8
13-14	26 1	255 116	7 6	297 10	11 2	295 12	10 2	-42 77	-4 5	-41 77	-3 5	1 5	1 1	-13 70	6
14-15	27	193 13	2	296 12	13 2	294 7	11 2	-103 9	0	-101 7	2	1 6	1 1	-15 83	2
15-16	28	193 13	2	295 12	13 2	294 7	11 2	-102 8	0	-101 6	2	1 5	1 1	-16 86	1
16-17	30 2	193 10	1	291 17	10 1	290 17	9 1	-98 9	0	-97 8	1	1 5	1 1	-18 86	1
17-18	38 3	200 34	8 3	282 13	8 2	280 12	8 2	-81 33	0	-80 33	0	1 5	0 1	-19 86	1
18-19	49 3	248 120	6 5	286 25	8 3	285 22	8 3	-38 80	-2 3	-37 79	-2 3	1 9	0 1	-20 84	1
19-20	55 2	193 12	2	304 54	12 2	307 42	11 2	-111 40	0	-114 17	1	2 9	1 1	-20 83	1
20-21	61 1	193 7	2	294 69	8 2	292 69	7 2	-80 72	0	-83 65	0	2 7	0 1	-21 82	1
21-22	65 1	193 9	2	281 9	9 2	281 8	9 2	-88 9	0	-88 7	0	1 5	1 1	-21 82	1
22-23	48 12	193 12	2	283 7	12 2	282 6	11 2	-91 7	0	-89 5	1	1 5	1 1	-22 75	3
23-24	28	193 12	1	278 14	11 1	276 13	11 1	-85 8	1	-83 6	1	2 6	1 1	-23 51	11

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# Mt. Washington Data

08-09	29	351 17 26 3	343 18 17 3	339 16 17 3	8 0 21 1	12 1 17 1	4 2 15 1	-23 31 1 1
09-10 133	29	353 20 19 4	346 20 19 4	340 18 8 4	7 0 19 1	13 2 18 1	6 2 15 1	-23 32 1 1
10-11	28	348 17 19 4	343 18 23 4	339 16 17 4	6 -1 19 1	9 1 16 2	3 2 17 2	-23 33 1 1
11-12	28	351 19 26 4	346 20 26 4	342 18 20 4	5 -1 20 1	9 2 18 2	4 2 16 2	-22 34 3 3
12-13	( 0.0)	347 25 19 4	340 25 23 4	336 23 8 4	7 0 19 1	11 2 17 2	4 3 14 2	-23 41 2 2
13-14	( 0.0)	338 27 24 4	335 27 17 4	331 24 11 4	3 0 18 1	7 3 16 2	4 3 15 2	-23 44 2 2
14-15	( 0.5)	319 29 17 5	313 29 15 5	311 25 13 5	6 0 17 1	8 4 15 2	2 4 13 2	-22 47 3 3
15-16	( 0.5)	323 31 20 4	315 32 39 4	314 27 17 4	8 0 15 1	9 4 15 2	1 5 12 2	-23 50 3 3
16-17	( 0.9)	326 34 14 4	321 35 13 4	318 30 11 4	6 0 13 1	9 5 12 2	3 5 11 2	-23 46 2 2
17-18	( 0.2)	333 32 18 4	325 32 39 4	322 28 11 4	8 0 18 1	10 4 17 2	2 4 13 2	-24 38 3 3
18-19	( 0.1)	345 27 18 3	339 28 26 3	334 24 11 3	6 0 21 1	11 3 16 2	5 4 15 1	-25 37 1 1
19-20	29	348 24 17 4	343 24 18 4	338 21 10 4	5 -1 21 1	10 2 17 1	4 3 15 1	-25 36 2 2
20-21	29	353 21 22 3	347 21 29 3	343 19 11 3	6 -1 21 1	10 2 17 1	4 2 15 1	-26 40 2 2
21-22	29	356 17 51 5	352 18 50 4	352 16 18 4	3 -1 19 3	4 0 16 3	0 2 16 2	-26 38 2 2
22-23	29	344 20 19 7	340 22 23 4	336 19 23 4	4 -2 20 5	7 1 16 5	3 3 15 2	-24 32 1 3
23-24	29	329 23 20 4	322 24 34 4	321 21 8 4	7 0 16 1	8 3 14 2	1 3 13 2	-23 28 2 2

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2359 230459Z 33030G44KT 65SM SKC M23/M33  
0055 230535Z 33037G47KT 65SM SKC M22/M31  
0159 230659Z 33046G53KT 65SM SKC M23/M38  
0259 230759Z 33041G47KT 65SM SKC M23/M33  
0359 230859Z 32044G57KT 65SM SKC M23/M31  
0456 230956Z 31046G53KT 75SM SKC M23/M31  
0551 231051Z 30044G50KT 75SM SKC M22/M32  
0650 231150Z 31039G50KT 65SM SKC M22/M37  
0744 231244Z 31031G41KT 65SM SKC M22/M38  
0856 231356Z 32014KT 75SM SKC M22/M35  
0955 231455Z 31018KT 80SM SKC M21/M36  
1053 231553Z 32022KT 80SM FEW040 M20/M34  
1156 231656Z 34017KT 80SM FEW040 M21/M34  
1258 231758Z 31015KT 80SM FEW100 M21/M33  
1353 231853Z 32017KT 80SM FEW100 M20/M32  
1659 232159Z 33019KT 70SM FEW100 M19/M40  
1750 232250Z 33011G23KT 70SM SCT100 M20/M35  
1857 232357Z 34012KT 65SM FEW100 M19/M31  
1954 240054Z 34011KT 65SM FEW120 M18/M25  
2251 240351Z 06011KT 65SM BKN180 M18/M24  
2357 240457Z 06009KT 65SM SCT180 M17/M24  
0055 240555Z 06012KT 65SM SCT180 M17/M26

00-01	( 0.1)	29	331 27	322 28	321 24	9 0	10 3	2 4	-23	30
			17 4	15 4	8 4	16 1	15 2	12 2		1
01-02	( 0.7)	29	321 34	315 34	314 29	6 0	7 4	1 4	-24	36
			85 4	16 4	10 4	15 1	14 2	11 2		2
02-03		29	320 31	314 32	313 27	6 0	7 4	1 4	-24	33
			17 4	15 4	10 4	12 1	12 2	10 2		2
03-04	( 0.1)	29	318 34	311 34	310 30	6 0	7 4	1 4	-23	33
			15 4	13 4	10 4	12 2	11 2	10 2		3
04-05	( 0.2)	29	319 37	312 37	311 33	7 0	7 4	1 5	-23	32
			16 4	12 4	8 4	11 1	11 2	9 2		3
05-06		29	315 32	309 34	307 30	6 -2	8 2	1 4	-22	27
			30 6	25 3	14 4	10 5	10 5	9 2		2
06-07		29	316 30	310 31	309 27	6 -1	7 3	1 4	-22	25
			14 5	14 4	11 4	9 3	9 3	10 2		1
07-08 230		28	323 11	309 26	308 23	13 -14	15 -11	1 3	-21	22
			19 11	13 4	12 4	16 9	14 10	10 1		1
08-09 217		26	342 0	326 19	324 16	17 -19	18 -16	1 3	-20	20
		3	30 1	32 3	23 3	15 3	10 3	11 2		1



# Mt. Washington Data

09-10	12	339 16 6	3	316 33 5	20	313 28 4	13	23 24 7	26 25 6	2 13 6	8 2	-19 18 1
10-11	18	25	325	0	317 15 2	315 14 2	14	8 5 2	9 4 2	1 5 1	2	-18 20
11-12	25	334 17	0	325 12 2	323 9 2	14	9 11 2	9 11 2	11 11 2	2 7 1	1	-18 22 1
12-13	24	338 32 1	0	331 10 2	328 9 2	13	9 10 2	7 10 2	10 9 2	3 7 1	2	-18 24 2
13-14	24	338 14	0	329 11 1	327 6 1	12	9 11 1	9 11 1	11 11 1	2 6 1	1	-18 29 1
14-15	24	334 13	0	326 11 1	324 11 1	11	11 9 1	7 9 1	10 9 1	2 7 1	1	-17 27 2
15-16	24	331 22	0	323 21 2	321 22 2	9	9 12 2	7 12 2	9 12 2	2 11 1	1	-17 23 2
16-17	24	287 135 6	5	300 132 4	326 129 4	12	8 16 7	8 16 7	12 19 7	3 14 1	1	-17 17 1
17-18	26	338 20	0	330 19 4	326 19 3	11	7 18 4	7 18 4	11 13 3	4 14 1	1	-19 19 2
18-19	26	018 48	0	011 37 2	015 19 2	7	6 13 2	6 13 2	3 11 2	-3 12 1	0	-19 25 3
19-20	26	022 15	0	015 18 2	021 14 2	7	7 10 2	7 10 2	1 8 2	-5 10 1	0	-18 43 6
20-21	26	025 9	0	018 10 1	022 9 1	8	7 10 1	7 10 1	2 7 1	-4 8 1	0	-18 48 4
21-22	26	036 21	0	029 25 2	034 18 2	6	7 10 2	7 10 2	2 7 2	-5 9 1	-1	-18 52 1
22-23	26	091 28	0	082 18 1	087 32 1	9	9 5 1	9 5 1	4 9 1	-5 10 1	0	-18 50 2
23-24	26	105 15	0	095 14 1	100 15 1	10	10 4 1	10 4 1	5 3 1	-10 4 1	1	-18 44 6

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# Mt. Washington Data

08-09	24	132 13	0	127 10	9 1	128 11	8 1	5 3	-9 1	5 3	-8 1	-1 3	0	-14 10	44 10
09-10	24	131 7	0	125 8	10 1	126 7	9 1	6 4	-10 1	5 3	-9 1	-1 3	0	-13 7	48 7
10-11	24	130 8	0	124 10	12 1	125 6	11 1	6 5	-12 1	5 5	-11 2	-1 5	1 1	-13 54	54 1
11-12	24	133 11	0	127 7	11 1	127 6	10 1	5 6	-11 1	5 5	-10 1	0 4	1 1	-13 53	53 1
12-13	23	132 8	0	126 8	9 1	127 7	8 1	5 6	-9 1	5 4	-8 1	0 4	0 1	-12 50	50 2
13-14	23	135 11	0	129 8	1 1	129 5	7 1	6 7	-8 1	6 5	-7 1	0 5	0 1	-12 46	46 2
14-15	23	146 11	0	140 11	7 1	139 8	7 1	6 8	-7 1	7 7	-7 1	1 7	0 1	-11 39	39 3
15-16	24	132 16	0	125 23	9 3	126 18	9 3	7 8	-9 3	6 6	-9 3	-1 6	0 1	-11 37	37 2
16-17	24	131 14	0	124 12	14 2	125 9	13 2	7 7	-14 2	6 6	-13 2	-1 7	1 1	-13 40	40 1
17-18	24	139 16	1 3	133 13	15 2	131 5	14 2	6 19	-14 4	8 15	-14 4	2 12	1 1	-14 42	42 1
18-19	24	136 9	0	129 11	16 1	129 4	15 1	6 8	-16 1	7 7	-15 1	0 5	1 1	-14 43	43 2
19-20	24	136 7	0	131 10	18 1	129 4	17 2	5 8	-18 1	7 6	-17 2	2 6	1 1	-15 45	45 4
20-21	25	144 9	1 3	138 9	22 3	135 4	21 3	6 11	-21 5	8 9	-20 5	3 9	1 1	-16 58	58 3
21-22	25	149 9	0	143 9	21 2	140 6	20 2	6 12	-21 2	9 9	-20 2	3 9	1 1	-15 48	48 5
22-23	24	149 13	0	142 20	19 1	140 3	18 2	7 12	-19 1	9 9	-18 2	3 9	1 1	-14 31	31 4
23-24	24	143 15	7 8	137 11	20 3	134 10	19 3	6 11	-13 5	9 9	-12 6	2 8	1 1	-15 44	44 3



# Mt. Washington Data

08-09	24	134	8	128	12	128	11	5	2	5	2	5	1	8
		8	0	9	2	5	2	6	-12	7	2	0	1	-13
												6	1	3
09-10	24	130	9	123	15	125	14	7	-15	6	2	-1	1	-13
				10	2	9	2	6	2	6	2	7	1	8
10-11	24	125	27	118	16	120	15	8	-16	7	2	-2	1	-13
				26	2	37	2	7	2	6	2	6	1	5
11-12	24	127	19	120	17	121	16	7	-17	7	3	-1	1	-12
				18	3	13	3	7	3	6	3	7	1	8
12-13	24	111	15	103	15	107	14	9	-15	7	3	-5	1	-12
				14	3	13	3	7	3	7	3	8	1	5
13-14	24	089	21	082	16	087	15	7	-16	8	3	-5	1	-11
				15	4	14	4	8	3	10	3	10	1	15
14-15	24	094	10	087	23	093	21	7	-21	6	3	-7	2	-12
				6	3	8	3	6	3	6	3	5	1	8
15-16	24	095	9	087	26	095	24	8	-22	7	3	-8	2	-12
				7	2	7	2	7	3	8	3	7	1	2
16-17	24	081	19	076	22	080	21	5	-20	8	3	-4	2	-12
				18	2	22	2	8	3	7	3	6	1	12
17-18	71	072	7	066	26	069	25	6	-16	7	6	-2	1	-12
	30			16	1	3	2	7	6	6	6	6	1	1
18-19	98	068	18	061	23	065	21	7	-10	9	2	-4	1	-12
				8	2	6	2	7	2	3	9	7	1	90
19-20	98	056	8	051	23	055	21	6	-9	11	1	-4	1	-11
				7	1	4	2	11	1	8	1	7	1	90
20-21	( 0.1)	98	056	19	051	24	055	23	6	-5	1	-3	2	-11
				11	3	10	2	12	1	10	2	9	1	90
21-22	98	052	20	047	21	051	20	5	-7	13	7	-4	1	-11
				8	20	14	3	13	7	10	7	9	1	90
22-23	( 0.3)	98	053	14	047	23	051	22	6	-9	1	-8	1	-11
				12	9	12	2	14	8	11	8	9	1	1
23-24	( 0.2)	98	047	15	040	21	045	21	7	-6	3	-6	0	-11
				20	4	11	2	15	3	12	4	9	1	1

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DATE = 0226

2356 260456Z 02041KT 1/16SM -SN BLSN FZFG VV000 M12/M12 RMK SNB40 LGT ICG  
0055 260555Z 02046G52 1/16SM -SN BLSN FZFG VV000 M11/M11 RMK LGT ICG  
0153 260653Z 35029G43KT 1/16SM BLSN FZFG VV000 M13/M13 RMK SNE40 LGT ICG  
0258 260758Z 35046G56KT 1/16SM BLSN FZFG VV000 M13/M13 RMK LGT ICG  
0453 260953Z 34048G62KT 0SM BLSN FZFG VV000 M14/M14 RMK LGT ICG  
0553 261053Z 33052G64KT 0SM BLSN FZFG VV000 M14/M14 RMK LGT ICG  
0651 261151Z 33053G67KT 0SM BLSN FZFG VV000 M15/M15 RMK LGT ICG  
0745 261245Z 32053G64KT 1/16SM BLSN FZFG VV000 M15/M15 RMK LGT ICG  
0859 261359Z 32049G76KT 0SM BLSN FZFG VV000 M14/M14 RMK LGT ICG  
0953 261453Z 32048G63KT 1/16SM BLSN FZFG VV000 M14/M14 RMK LGT ICG  
1056 261556Z 32061G76KT 0SM BLSN FZFG VV000 M13/M13 RMK LGT ICG  
1155 261655Z 32058G75KT 1/16SM BLSN FZFG VV000 M12/M12 RMK LGT ICG  
1250 261750Z 32057G70KT 0SM FZFG VV000 M12/M12 RMK LGT ICG  
1356 261856Z 31063G71KT 1/16SM FZFG VV000 M13/M13 RMK LGT ICG  
1455 261955Z 31061G73KT 0SM FZFG VV000 M13/M13 RMK LGT ICG  
1550 262050Z 31066G75KT 1/16SM FZFG VV000 M13/M13 RMK LGT ICG  
1659 262159Z 31063G71KT 1/16SM FZFG VV000 M14/M14 RMK LGT ICG  
1756 262256Z 31056G68KT 1/16SM FZFG VV000 M14/M14 RMK LGT ICG  
1851 262351Z 31062G75KT 1/16SM FZFG VV000 M15/M15 RMK LGT ICG  
1959 270059Z 31068G72KT 15SM SCT000 SCT050 M14/M15 RMK INTMT FZFG  
2058 270158Z 29055G71KT 25SM FEW005 SCT050 M14/M16 RMK ACSL ALQDS  
2159 270259Z 30056G72KT 25SM FEW005 FEW020 M14/M16 RMK ACSL N SE  
2257 270357Z 31049G63KT 65SM SCT005 M14/M15  
2356 270456Z 31048G62KT 65SM SKC M13/M15  
0052 270552Z 31053G67KT 65SM FEW005 M14/M16

00-01	( 0.2)	98	039 10	032 20	037 21	6 -11	1 -11	-5	0	-11	91
			16 6	13 3	10 3	13 6	12 6	9	1		1
01-02	( 0.4)	98	015 10	010 20	015 19	5 -10	0 -9	-5	1	-11	90
			18 5	16 4	20 4	14 4	12 4	10	1	1	1
02-03	( 3.1)	98	357 12	355 24	356 22	2 -12	2 -10	-1	2	-12	90
			12 2	14 3	14 3	16 2	13 2	12	1		
03-04	( 15.6)	98	354 12	352 28	352 25	2 -16	2 -13	0	3	-12	90
			15 2	16 3	8 4	17 2	13 3	14	2		1
04-05	( 8.4)	98	355 12	351 31	348 27	4 -19	8 -15	3	4	-13	89
			15 2	15 5	4 4	20 3	16 3	14	2		1
05-06	( 14.8)	98	351 14	346 37	346 32	5 -23	5 -18	0	5	-13	89
			37 2	19 5	4 5	23 3	17 3	14	2		
06-07	( 28.6)	98	344 17	340 42	340 35	4 -26	4 -18	0	7	-13	89
			27 2	17 4	9 5	31 3	28 4	15	3		
07-08	( 24.2)	98	330 16	331 43	328 37	0 -26	2 -21	2	5	-13	89
			50 2	15 5	7 5	45 3	42 4	12	3		

# Mt. Washington Data

08-09	( 9.9)	98	327 15 67 2	333 41 29 5	331 35 5 5	-2 -26 61 3	-4 -20 54 4	2 6 15 2	-13 89
09-10	( 6.6)	98	145 13 171 2	326 41 28 5	328 35 8 5	16 -27 62 4	13 -21 61 3	-3 6 13 2	-13 89
10-11	( 5.0)	98	311 13 97 2	325 44 17 6	327 36 4 5	-11 -31 91 4	-16 -23 89 4	-2 8 16 2	-12 90 1 1
11-12	( 6.3)	98	150 13 115 2	328 47 29 5	330 40 6 5	5 -34 88 4	-2 -26 83 4	-3 7 18 2	-11 91
12-13	( 0.9)	98	150 11 151 2	321 46 16 4	326 41 10 4	11 -35 75 3	5 -30 76 4	-6 5 14 2	-11 91
13-14	( 1.0)	98	106 7 123 1	317 45 15 4	323 40 5 5	12 -38 84 4	2 -32 80 4	-6 5 13 2	-11 90
14-15	( 0.2)	98	114 6 130 1	312 48 11 4	318 41 3 4	-5 -41 91 3	-11 -35 92 4	-6 6 10 2	-12 90
15-16	( 0.7)	98	337 3 79 2	311 49 15 4	317 42 4 4	27 -47 82 4	20 -40 80 5	-7 7 13 2	-12 90
16-17	( 0.3)	98	101 1 142 1	310 50 17 3	316 44 3 4	28 -49 68 3	22 -43 67 4	-6 6 11 2	-12 89
17-18	( 0.0)	98	246 2 20 1	308 47 18 4	313 41 6 4	-62 -45 16 4	-67 -39 13 4	-5 6 11 2	-13 89
18-19	( 8.3)	98	159 5 129 1	311 54 12 5	312 47 7 5	3 -49 71 4	2 -41 72 4	-1 7 9 2	-14 88
19-20	( 0.9)	98	329 5 91 1	310 57 8 4	312 49 3 4	19 -52 73 4	17 -45 73 4	-2 7 7 2	-14 88
20-21	( 0.3)	98	343 3 99 2	309 55 10 4	310 48 4 4	34 -52 66 3	33 -45 67 4	-1 7 7 2	-14 88
21-22	( 0.2)	98	211 2 98 1	308 51 12 4	309 46 7 4	-27 -50 56 4	-28 -44 56 4	-1 6 9 2	-14 88
22-23	( 0.8)	98	137 1 158 1	310 51 13 5	310 45 7 5	19 -50 68 5	19 -44 68 5	0 6 10 2	-14 89
23-24	( 0.3)	98	156 0 159 1	310 47 14 5	309 41 13 5	14 -46 67 5	15 -41 67 5	0 5 11 2	-13 89

# Mt. Washington Data

DATE = 0227

2356 270456Z 310486G62KT 65SM SKC M13/M15  
0052 270532Z 31053G67KT 65SM FEW005 M14/M16  
0256 270756Z 31055G68KT 65SM SKC M16/  
0359 270859Z 30061G72KT 65SM SKC M15/M18  
0455 270955Z 31053G75KT 65SM SKC M15/M20  
0557 271057Z 32057G74KT 90SM FEW020 M16/M20  
0657 271157Z 32053G75KT 90SM FEW020 M16/M20  
0855 271355Z 30053G60KT 90SM FEW002 FEW020 M15/M18  
0956 271456Z 30053G59KT 90SM FEW002 FEW030 M13/M21  
1059 271559Z 30041G50KT 90SM FEW020 M14/M18  
1150 271650Z 31037G45KT 90SM FEW010 M11/M17  
1257 271757Z 29024G41KT 75SM FEW010 M12/M17  
1358 271858Z 29023G31KT 75SM FEW020 M12/M17  
1455 271955Z 28024G32KT 75SM SKC M10/M16 RMK HZ DSNT W-NE  
1555 272055Z 28012G24KT 75SM FEW060 M11/M17 RMK HZ DSNT ALQDS  
1659 272159Z 30006KT 100SM FEW060 M10/M19  
1755 272255Z 31012KT 90SM FEW180 M09/M13  
1956 280056Z 33013KT 65SM SKC M07/M23  
2059 280159Z 35009KT 65SM SKC M07/M19  
2149 280249Z 34006KT 65SM SKC M06/M20  
2259 280359Z 34005KT 65SM SKC M06/M21  
2359 280459Z 15006KT 65SM SKC M06/M20  
0057 280557Z 17010KT 65SM SCT180 M07/M22

00-01	( 0.0)	98	115	0	312	47	311	42	-11	-47	-11	-42	1	5	-14	88
			162	1	14	5	10	5	64	5	62	5	12	2		
01-02	( 0.2)	98	159	0	312	48	311	43	12	-48	12	-43	0	5	-14	88
			160		14	5	9	5	63	5	64	5	13	2		
02-03	( 0.1)	98	133	0	309	47	309	42	-9	-47	-9	-42	0	5	-15	87
			168	1	15	6	10	6	60	6	61	6	12	2		
03-04	( 0.2)	98	293	0	313	48	312	42	-20	-47	-19	-42	1	5	-15	87
			61		14	6	13	6	56	6	57	6	11	2		
04-05	( 0.2)	98	198	0	316	50	315	44	-15	-50	-14	-44	1	6	-15	87
			127	1	17	6	11	6	58	6	57	6	13	2		
05-06	( 0.3)	98	098	0	313	51	313	45	-17	-51	-18	-45	0	6	-16	86
			160	1	16	6	10	6	55	6	53	6	12	2		
06-07	( 0.4)	98	252	5	313	53	312	47	-39	-48	-39	-42	1	6	-16	86
			60	2	24	6	16	6	28	5	29	5	11	2		
07-08	( 0.2)	98	244	7	314	51	314	45	-29	-44	-28	-38	0	6	-16	87
			88	1	12	5	6	5	37	5	37	5	10	2		
08-09	( 0.0)	98	174	6	314	45	314	40	1	-39	1	-34	0	5	-15	87
			159	1	9	3	5	4	49	3	50	3	8	2		



# Mt. Washington Data

09-10	98	251 82	6 1	314 10	42 3	314 5	37 3	-28 35	-36 3	-28 34	-31 3	0 9	5 1	-14 88
10-11	88 26	296 42	6 3	319 16	37 3	318 5	33 3	-22 34	-31 5	-22 33	-27 5	0 8	4 1	-14 88
11-12	23	327 17	0 1	319 14	30 4	318 8	27 4	8 17	-30 4	9 16	-27 4	1 12	4 2	-12 89
12-13	23	312 19	0 1	304 42	28 3	305 13	24 3	7 14	-28 3	7 13	-24 3	0 11	4 1	-11 86
13-14	23	296 14	0 1	290 10	25 3	290 8	21 3	6 8	-25 3	6 9	-21 3	0 7	3 1	-11 85
14-15	23	305 15	0 1	296 10	25 3	296 11	22 3	9 8	-25 3	9 9	-22 3	0 8	3 1	-10 81
15-16	22	301 21	0 1	293 23	20 3	293 13	18 3	8 11	-20 3	8 11	-18 3	1 10	3 1	-9 73
16-17	23	307 21	0 1	296 34	16 4	296 17	13 3	11 14	-16 4	11 13	-13 3	0 15	2 1	-9 66
17-18	23	324 38	0 1	315 36	11 3	314 36	10 3	9 16	-11 3	11 16	-10 3	2 15	1 1	-10 57
18-19	23	346 49	0 1	337 65	8 3	337 42	7 3	9 17	-8 3	10 17	-7 3	0 19	1 1	-10 50
19-20	22	326 33	0 1	334 81	10 4	316 39	9 3	7 13	-10 4	10 11	-9 3	3 12	1 1	-8 45
20-21	22	008 34	0 1	001 22	10 3	003 31	9 3	7 12	-10 3	5 10	-9 3	-2 10	0 1	-8 40
21-22	22	045 57	0 1	027 41	4 2	046 65	5 2	6 30	-4 2	6 36	-5 2	5 40	-1 1	-7 37
22-23	23	118 77	0 1	107 75	5 2	110 78	5 1	11 4	-5 2	8 4	-5 1	-3 4	0 1	-8 36
23-24	22	172 20	0 1	168 22	5 1	167 21	6 1	5 2	-5 1	6 5	-6 1	1 5	0 1	-8 37

# Mt. Washington Data

DATE = 0228

2359 280459Z 15006KT 65SM SKC M06/M20  
0057 280557Z 17010KT 65SM SCT180 M07/M22  
0152 280652Z 18012KT 65SM OVC150 M08/M23  
0357 280857Z 18011KT 65SM SCT150 M08/M21  
0458 280958Z 19014KT 65SM FEW150 M08/M15  
0552 281052Z 18021KT 65SM FEW080 FEW120 M08/M18  
0653 281153Z 19023KT 90SM FEW050 SCT080 BKN180 M06/M19  
0746 281246Z 1902430KT 90SM SCT060 BKN150 M07/M18  
0849 281349Z 17032G37KT 90SM SCT 080 BKN150 M06/M17  
0955 281455Z 17037G43KT 90SM SCT080 BKN150 M05/M20  
1057 281557Z 17042G52KT 90SM BKN060 OVC150 M06/M23 RMK ACCL S-W  
1159 281659Z 17048G56KT 90SM BKN080 BKN150 M06/M18 RMK VIRGA N ACCL SW-E  
1253 281753Z 17046G56KT 75SM SCT010 OVC040 M07/M20 RMK VIRGA N-NE ACCL ALQDS  
1358 281858Z 17038G49KT 40SM SCT010 OVC050 M09/M17 RMK VIS W 2 ACCL N-E  
1457 281957Z 17053G60KT 20SM OVC020 M09/M18 RMK SNB20 VIRGA NW-NE ACCL N  
1555 282055Z 16049G60KT 0SM -SN VV000 M11/M11 RMK LGT ICG  
1651 282151Z 15047G56KT 0SM -SN BLSN FZFG VV000 M10/M10 RMK LGT ICG  
1754 282254Z 15053G66KT 0SM -SN BLSN FZFG VV000 M11/M11 RMK LGT ICG  
1956 290056Z 15055KT 0SM -SN BLSN FZFG VV000 M10/M10 RMK LGT ICG  
2055 290155Z 15057G62KT 0SM -SN BLSN FZFG VV000 M09/M09 RMK LGT ICG  
2148 290248Z 14046G52KT 0SM -SN BLSN FZFG VV000 M09/M09 RMK LGT ICG  
2257 290357Z 14045KT 0SM -SN BLSN FZFG VV000 M08/M08 RMK LGT ICG  
2359 290459Z 15038G48KT 0SM PL FZRA FZFG VV000 M06/M06 RMK SNEPLBFZRA30 LGT GICG  
0054 290554Z 15046G57KT 0SM -SN BLSN FZFG VV000 M04/M04 RMK PLEFZRA30 LGT ICG

00-01	23	164	0	161	8	158	9	3	-8	6	-9	3	0	-8	34
		11		10	1	11	1	3	1	2	1	3		2	
01-02	23	172	0	167	12	166	12	5	-12	6	-12	1	0	-8	30
		9		8	1	7	1	5	1	4	1	4	1	2	
02-03	22	206	0	199	14	197	14	6	-14	8	-14	2	1	-7	30
		43		39	1	31	2	7	1	7	2	7	1	1	
03-04	22	194	0	187	15	187	15	6	-15	7	-15	1	1	-7	29
		17		21	2	14	2	5	2	5	2	5	1	1	
04-05	23	195	0	189	17	187	16	6	-17	7	-16	1	1	-8	37
		16		14	2	10	2	10	2	10	2	10	1	5	
05-06	23	192	0	185	20	185	19	7	-20	8	-19	1	2	-7	37
		30		21	2	6	2	13	2	14	2	14	1	3	
06-07	22	190	0	185	21	183	19	5	-21	7	-19	2	2	-6	30
		22		27	3	8	4	14	3	16	4	16	1	2	
07-08	21	192	0	185	21	184	19	7	-21	8	-19	1	2	-5	31
		20		17	3	9	3	15	3	16	3	13	1	2	
08-09	21	180	0	176	24	173	22	4	-24	7	-22	3	1	-6	35

# Mt. Washington Data

09-10	20	1	20	49	4	12	4	11	4	10	4	9	1	4
			171	0	168	29	164	28	4	-29	7	-28	4	2
			23		20	3	25	3	8	3	9	3	8	1
10-11	21	1	171	0	167	34	163	32	4	-34	7	-32	4	2
			10		12	3	4	3	9	3	9	3	8	1
11-12	22	1	169	0	167	38	162	36	2	-38	7	-36	5	2
			7		7	2	3	3	8	2	7	3	7	1
12-13	22	2	171	0	169	39	163	37	2	-39	8	-37	6	2
			10		10	2	6	3	9	2	8	3	7	1
13-14	23		170	0	167	35	163	33	4	-35	8	-33	4	2
			14		9	3	7	3	9	3	8	3	7	1
14-15	23		168	0	165	39	161	36	4	-39	8	-36	4	2
			10		10	3	4	3	10	3	7	3	8	1
15-16	26	2	169	0	165	41	161	37	4	-41	8	-37	4	3
			8		12	3	6	4	10	3	9	4	10	2
16-17	79	25	162	0	156	38	153	34	6	-38	9	-34	4	3
			12		24	3	14	4	13	3	9	4	11	3
17-18	98		154	0	150	40	147	38	4	-40	8	-38	3	2
			11		30	3	10	6	15	3	11	6	13	4
18-19	62	36	153	0	146	41	145	31	7	-41	11	-31	-5	5
			15		12	4	6		15	4	11	6	14	4
19-20	98		150	0	142	37	181	30	8	-37	-30	-30	-37	9
			17		22	2	76	14	18	2	66	14	74	12
20-21	98		147	0	139	39	000	0	8	-39	0	0	0	0
			22		18	3			18	3				
21-22	98		145	0	138	35	119	24	8	-35	15	-24	27	3
			23		16	5	2		19	5	24	2	2	2
22-23	98		147	0	137	32	137	22	10	-32	10	-22	0	7
			27		15	3	4		17	3	13	4	17	5
23-24	98		146	0	139	29	140	24	6	-29	6	-24	-1	4
			14		13	3	4	3	16	3	14	3	13	2

# Mt. Washington Data

DATE = 0301

2359 010459Z 15038G48KT OSM PL **FZRA FZFG** VV000 M06/M06 RMK **SNEPLB FZRA B30** LGT **GICG**  
0054 010554Z 15046G57KT OSM **-SN BLSN FZFG** VV000 M04/M04 RMK **PLEF FZRA SNB25** LGT **ICG**  
0159 010659Z 15042G49KT OSM **FZRA FZFG** VV000 M04/M04 RMK LGT **GICG**  
0255 010755Z 15044G50KT OSM **FZRA FZFG** VV000 M03/M03 RMK MOD **GICG**  
0352 010855Z 15042G55KT OSM **FZRA FZFG** VV000 M03/M03 RMK MOD **GICG**  
0459 010959Z 15038G44KT OSM **FZRA IP FZFG** VV000 M03/M03 RMK IPB40 MOD **GICG**  
0555 011055Z 15035G44KT OSM **-FZRA IP FZFG** VV000 M03/M03 RMK MOD **GICG**  
0655 011155Z 15044G53KT OSM **-FZRA FZFG** VV000 M02/M02 RMK **PLE10** LGT **ICG**  
0746 011246Z 15038G48KT OSM **-FZRA FZFG** VV000 M02/M02 RMK LGT **GICG**  
0855 011355Z 14046G58KT OSM **-FZRA FZFG** VV000 M02/M02 RMK MOD **GICG**  
0957 011457Z 15041G49KT OSM **-FZRA FZFG** VV000 M02/M02 RMK MOD **GICG**  
1059 011559Z 15030KT OSM **-FZRA FZFG** VV000 M02/M02 RMK MOD **GICG**  
1158 011658Z 1503036KT 1/8SM **FZFG** VV000 M02/M02 RMK **FZRA B30 FZFG** INTMT  
1252 011752Z 18017KT 1/16SM **FZFG** VV000 M02/M02 RMK **FZFG** INTMT LGT **GICG**  
1358 011858Z 18012KT 1/16SM **FZFG** BKN000 OVC120 M03/M03 RMK **FZFG** INTMT LGT **GICG**  
1457 011957Z 15009KT OSM **FZFG** VV000 M03/M03 RMK LGT **GICG**  
1553 012053Z 15009KT 1/16SM **FZFG** VV000 M03/M03 RMK LGT **GICG**  
1659 012159Z 19012KT 1/16SM **FZFG** VV000 M04/M04 RMK LGT **ICG**  
1752 012252Z 19008KT 1/16SM **-SN FZFG** VV000 M07/M07 RMK **SNB40** LGT **ICG**  
1847 012347Z 26014KT OSM **-SN FZFG** VV000 M08/M08 RMK LGT **ICG**  
1950 020050Z 26016KT OSM **-SN FZFG** VV000 M08/M08 RMK LGT **ICG**  
2059 020159Z 15017KT OSM **FZFG** VV000 M08/M08 RMK **SNE25** LGT **ICG**  
2159 020259Z 15017KT OSM **-SN FZFG** VV000 M08/M08 RMK **SNB40** LGT **ICG**  
2258 020358Z 18023KT OSM **-SN FZFG** VV000 M08/M08 RMK LGT **ICG**  
2357 020457Z 22020KT OSM **-SN FZFG** VV000 M10/M10 RMK LGT **ICG**  
0051 020551Z 23023KT OSM **-SN FZFG** VV000 M10/M10 RMK LGT **ICG**

00-01	( 0.4)	99	152	0	145	28	142	25	0	0	0	0	3	3	-5	96
			23		18	4	4	4					15	2	1	1
01-02	( 2.7)	98	160	0	147	29	144	27	0	0	0	0	2	3	-4	97
			13		29	3	5	3					15	2		
02-03		98	166	0	135	27	138	24	0	0	0	0	-3	3	-3	97
					27	4	4	4					17	2		
03-04		98	166	0	135	25	138	23	0	0	0	0	-3	3	-2	98
					21	4	5	4					20	2		
04-05		99	166	0	121	25	132	23	0	0	0	0	-11	2	-2	98
					31	3	8	3					15	2		
05-06		80	166	0	135	22	137	20	0	0	0	0	-2	1	-2	98
		19			22	3	6	3					17	2		
06-07		80	166	0	150	29	142	25	0	0	0	0	7	4	0	98
		33			34	4	3	4					16	2	1	
07-08		99	166	0	144	30	140	25	0	0	0	0	4	5	0	99
		1			33	4	6	4					16	2		

# Mt. Washington Data

08-09	99	166	0	141 28	137 22	0	0	0	0	4	6	1	99
				39 3	3 3					15	2		
09-10	( 0.0)	98	166	0	135 29	136 21	0	0	0	0	-1	0	99
		1			31 4	2 4				16	2		
10-11	98	166	0	133 25	136 18	0	0	0	0	-3	8	1	99
				28 2	5 2					14	1		
11-12	98	166	0	150 20	140 15	0	0	0	0	10	5	1	99
				33 3	5 3					16	1		
12-13	44	166	0	178 20	147 13	0	0	0	0	32	7	1	99
	36			14 2	4 3					11	2		
13-14	42	167	0	196 15	151 6	0	0	0	0	45	8	1	99
	34	2		14 3	8 2					14	3		
14-15	93	171	0	192 12	153 7	0	0	0	0	39	5	0	99
	13	2		24 2	18 2					17	2	1	
15-16	98	173	0	172 11	144 7	0	0	0	0	28	3	-1	98
				17 1	3 1					12	1		
16-17	99	173	0	184 9	148 5	0	0	0	0	37	4	-2	98
				32 3	10 2					15	2		
17-18	84	173	0	225 9	165 8	0	0	0	0	60	1	-5	95
	27			8 1	42 1					27	2	1	1
18-19	91	173	0	244 9	214 8	0	0	0	0	30	1	-6	95
	11			25 2	87 2					29	2		
19-20	99	173	0	253 8	236 8	0	0	0	0	16	0	-7	94
	2			23 2	20 2					11	1		
20-21	99	173	0	211 7	173 5	0	0	0	0	38	2	-7	95
				37 2	65 2					22	2		
21-22	99	173	0	175 7	146 5	0	0	0	0	29	2	-6	95
				24 2	14 1					13	1		
22-23	99	173	0	209 6	174 4	0	0	0	0	35	2	-7	94
				39 2	44 1					18	2		
23-24	99	173	0	218 10	185 7	0	0	0	0	33	3	-8	94
				35 3	52 3					23	3		

# Mt. Washington Data

DATE = 0302

2357 020457Z 22020KT OSM -SN FZFG VV000 M10/M10 RMK LGT ICG  
0051 020551Z 23023KT OSM -SN FZFG VV000 M10/M10 RMK LGT ICG  
0159 020659Z 23020KT OSM -SN FZFG VV000 M10/M10 RMK LGT ICG  
0357 020857Z 23021KT OSM -SN FZFG VV000 M11/M11 RMK LGT ICG  
0451 020951Z 25019KT OSM -SN FZFG VV000 M11/M11 RMK LGT ICG  
0550 021050Z 26019KT 1/16SM -SN FZFG VV000 M11/M11 RMK LGT ICG  
0646 021146Z 26027KT OSM -SN FZFG VV000 M12/M12 RMK LGT ICG  
0745 021245Z 26024KT OSM -SN FZFG VV000 M13/M13 RMK LGT ICG  
0856 021356Z 26021KT OSM -SN FZFG VV000 M14/M14 RMK LGT ICG  
0946 021446Z 26013KT OSM -SN FZFG VV000 M14/M14 RMK LGT ICG  
1053 021553Z 26020KT OSM FZFG VV000 M13/M13 RMK SNE30 LGT ICG  
1154 021654Z 26022KT OSM FZFG VV000 M13/M13 RMK LGT ICG  
1243 021743Z 25022KT OSM -SN FZFG VV000 M12/M12 RMK SNE15 LGT ICG  
1355 021855Z 26029KT OSM -SN FZFG VV000 M13/M13 RMK LGT ICG  
1456 021956Z 26031G37KT OSM -SN FZFG VV000 M14/M14 RMK LGT ICG  
1545 022045Z 27032G38KT OSM -SN FZFG VV000 M14/M14 RMK LGT ICG  
1659 022159Z 27042G48KT OSM -SN FZFG VV000 M14/M14 RMK LGT ICG  
1759 022259Z 27044KT OSM -SN BLSN FZFG VV000 M14/M14 RMK LGT ICG  
1859 022359Z 27043G52KT OSM -SN BLSN FZFG VV000 RMK LGT ICG  
1959 030059Z 27046KT OSM -SN BLSN FZFG VV000 M14/M14 RMK LGT ICG  
2058 030158Z 27042G50KT OSM -SN BLSN FZFG VV000 M14/M14 RMK LGT ICG  
2159 030259Z 29048KT OSM -SN BLSN FZFG VV000 M16/M16 RMK LGT ICG  
2259 030359Z 27048KT OSM BLSN FZFG VV000 M16/M16 RMK SNE30 MOON DMLY VSBL LGT ICG  
2359 030459Z 29048G57KT 1/16SM BLSN FZFG VV000 M16/M16 RMK FZFG INTMT LGT ICG  
0051 030551Z 30048G55KT 1/16SM BLSN FZFG VV000 M16/M16 RMK MOON DMLY VSBL LGT ICG

00-01	95 6	173	0	230	13	201	10	0	0	0	29	2	-8	93
				40	2	53	3				23	3		
01-02	99 1	173	0	231	13	203	11	0	0	0	27	2	-9	93
				16	2	27	3				21	3		
02-03	89 7	173	0	245	17	230	16	0	0	0	15	1	-9	93
				14	2	8	2				12	2		
03-04	87 5	173	0	256	17	240	15	0	0	0	16	2	-9	93
				15	2	8	2				10	1		
04-05	78 5	173	0	263	17	246	14	0	0	0	17	3	-9	93
				10	2	10	2				9	1		
05-06	( 21.7) 4	76	173	0	272	17	263	12	0	0	9	5	-10	92
				21	3	24	3				17	3		
06-07	( 0.3) 10	47	173	0	279	23	270	13	0	0	9	10	-11	91
				8	3	15	2				9	3		
07-08	( 0.1) 35 11	173	0	282	24	273	13	0	0	0	9	11	-12	91
				8	2	10	2				8	3		

# Mt. Washington Data

08-09	49 9	173	0	285 22 7 2	278 11 8 2	0	0	0	0	8 11 7 2	-12	90
09-10	88 10	173	0	276 16 7 3	265 10 7 2	0	0	0	0	11 6 5 2	-12	90
10-11	99	173	0	282 24 7 2	274 15 6 1	0	0	0	0	9 9 6 2	-12	90
11-12	99	173	0	287 24 7 2	277 15 6 2	0	0	0	0	11 9 6 2	-11	91
12-13	99	173	0	293 24 9 3	285 13 10 3	0	0	0	0	8 11 6 1	-11	91
13-14	( 0.1) 91 10	173	0	287 27 9 2	276 16 9 2	0	0	0	0	11 11 6 2	-11	91
14-15	192 ( 54.6) 60 9	173	0	291 29 12 2	284 18 24 4	0	0	0	0	5 10 20 3	-12	90
15-16	123 ( 87.9) 16 16	173	0	303 34 17 3	236 31 12 4	0	0	0	0	66 3 11 5	-12	90
16-17	272 ( 66.5) 0	173	0	304 38 11 3	243 29 5 2	0	0	0	0	60 8 8 3	-12	90
17-18	152 ( 90.5) 0	173	0	302 44 9 3	248 32 7 2	0	0	0	0	52 11 8 3	-12	90
18-19	168 ( 81.4) 0	173	0	308 49 9 3	250 33 8 2	0	0	0	0	58 15 10 3	-13	90
19-20	0 (100.0) 0	173	0	308 45 10 3	000 0	0	0	0	0	0 0	-13	90
20-21	1 (100.0) 0	173	0	306 48 10 4	343 0	0	0	0	0	-36 52	-13	89
21-22	0 (100.0) 0	173	0	306 48 8 3	000 0	0	0	0	0	0 0	-14	89
22-23	0 (100.0) 0	173	0	307 47 7 3	000 0	0	0	0	0	0 0	-14	88
23-24	0 (100.0) 0	173	0	314 48 16 4	000 0	0	0	0	0	0 0	-15	88

# Mt. Washington Data

DATE = 0303

2359	030459Z	29048G57KT	1/16SM	BLSN	FZFG	VV000	M16/M16	RMK	FZFG	INTMT	LGT	ICG
0051	030551Z	30048G55KT	1/16SM	BLSN	FZFG	VV000	M16/M16	RMK	MOON	DMLY	VSBL	LGT
0159	030659Z	30049G57KT	25SM	DRSN	SCT///	SKC	M14/M20	RMK	TPS	LWR	SCT035	
0259	030759Z	29046G52KT	25SM	DRSN	FEM///	FEW180	M11/M28	RMK	TPS	LWR	FEW035	
0359	030859Z	29042KT	25SM	FEW010	BKN180	M11/M29						
0456	030956Z	26032KT	65SM	FEW020	SCT100	M11/M23						
0552	031052Z	30030KT	65SM	BKN080	M09/M15							
0651	031151Z	26028KT	65SM	OVC060	M08/M22							
0746	031246Z	26020KT	40SM	SCT020	BKN060	OVC150	M08/M21					
0853	031353Z	23019KT	30SM	OVC005	M07/M20	RMK	VIRGA N-S	SUN	DMLY	VSBL		
0952	031452Z	22017KT	15SM	OVC002	M07/M16	RMK	SUN	DMLY	VSBL			
1047	031547Z	23021G41KT	1/16SM	-SN	FZFG	VV000	M07/M07	RMK	SNB15	LGT	ICG	
1156	031656Z	21031KT	1/8SM	FZFG	VV000	M08/M08	RMK	INTMT	FZFG			
1250	031750Z	20033G41KT	10SM	DRSN	FEW///	SCT040	OVC060	M07/M19	RMK	SNE1645	TPS	LWR
1455	031955Z	19043G55KT	1	1/2SM	BR	DRSN	VV010	M08/M13	RMK	INTMT	FZFG	
1559	032059Z	19044G58KT	35SM	DRSN	FEW///	OVC020	M08/M12	RMK	BBLO	N	INTMT	FZFG
1654	032154Z	19048G58KT	50SM	DRSN	BKN020	OVC040	M08/M11					
1752	032252Z	18053G63KT	50SM	DRSN	BKN020	OVC040	M08/M11					
1852	032352Z	18052G60KT	1/4SM	FZFG	DRSN	VV000	M09/M09	RMK	FZFG	INTMT	LGT	ICG
1956	040056Z	18053G62KT	1/16SM	FZFG	DRSN	VV000	M07/M07	RMK	LGT	ICG		
2053	040153Z	18049G57KT	1/16SM	FZFG	DRSN	VV000	M05/M05	RMK	LGT	ICG		
2155	040255Z	13048G60KT	1/16SM	SN	BLSN	FZFG	VV000	M05/M05	RMK	SNB25	MOD	ICG
2254	040354Z	15049G66KT	1/16SM	-SN	BLSN	FZFG	VV000	M04/M04	RMK	LGT	ICG	
2359	040459Z	15046G57KT	1/16SM	-SN	BLSN	FZFG	VV000	M03/M03	RMK	LGT	ICG	
0058	040558Z	15058G78KT	1/16SM	-SN	BLSN	FZFG	VV000	M02/M02	RMK	LGT	ICG	
00-01	2 ( 99.9)	0	173	0	321	44	343	0	0	0	0	-29 48
					12	4						5 1
01-02	63 ( 83.6)	0	173	0	320	46	315	34	0	0	0	-15 88
					12	3	8	3				6 15
												10 2
02-03	( 2.9)	21	173	0	320	43	315	32	0	0	0	-14 88
		18			22	4	5	4				6 11
												9 3
03-04	( 0.4)	6	173	0	314	38	309	30	0	0	0	-14 89
		8			11	3	11	3				5 8
												8 2
04-05		39	173	0	309	30	304	24	0	0	0	-13 89
		37			14	3	11	2				5 7
												7 1
05-06		99	173	0	310	25	304	20	0	0	0	-13 89
					9	2	7	2				6 5
												7 1
06-07		99	173	0	297	19	290	16	0	0	0	-12 90
					7	2	8	2				7 4
												5 1
07-08		98	173	0	272	14	261	11	0	0	0	-11 91
					16	2	21	1				11 2
												7 1



# Mt. Washington Data

08-09		40 44	173 0	238 13 16 2	226 13 16 2	0 0 0 0	0 0 0 0	13 0 13 2	-10 92
09-10	( 0.0)	21 1	173 0	227 13 21 2	208 12 20 3	0 0 0 0	0 0 0 0	19 1 20 3	-9 92
10-11	( 0.1)	21	173 0	201 17 41 4	185 13 54 6	0 0 0 0	0 0 0 0	16 4 23 3	-8 94 1 2
11-12	( 0.8)	26 4	173 0	205 20 50 4	187 15 51 6	0 0 0 0	0 0 0 0	17 4 28 4	-6 95 1 1
12-13	( 0.5)	18 9	173 0	171 26 22 4	152 17 11 4	0 0 0 0	0 0 0 0	20 9 20 3	-8 92 1 1
13-14	( 1.8)	6 10	173 0	175 33 12 2	152 22 4 2	0 0 0 0	0 0 0 0	24 11 12 2	-9 92 1 1
14-15	( 1.3)	22 3	173 0	174 35 17 3	150 25 6 3	0 0 0 0	0 0 0 0	24 10 9 2	-9 93
15-16	( 1.4)	23	173 0	174 38 13 3	149 29 2 3	0 0 0 0	0 0 0 0	25 9 9 2	-8 93
16-17	( 1.3)	23	173 0	174 40 9 3	150 29 3 3	0 0 0 0	0 0 0 0	24 11 8 2	-9 93
17-18	( 0.7)	23	173 0	173 42 8 3	149 33 2 3	0 0 0 0	0 0 0 0	24 10 8 2	-8 93
18-19	( 7.7)	23 1	173 0	174 45 9 4	149 34 3 3	0 0 0 0	0 0 0 0	25 11 9 2	-8 94
19-20	( 2.7)	27 10	173 0	176 44 8 2	150 33 2 2	0 0 0 0	0 0 0 0	26 11 8 2	-7 94
20-21	( 3.3)	94 10	173 0	175 44 8 4	149 32 3 3	0 0 0 0	0 0 0 0	26 11 9 2	-5 96 1 1
21-22	( 21.1)	98	173 0	162 40 17 5	149 33 6 6	0 0 0 0	0 0 0 0	13 7 15 4	-4 97
22-23 280	( 50.2)	98	162 0 19	162 45 28 7	152 38 11 7	0 0 0 0	0 0 0 0	10 6 18 4	-3 98 1 1
23-24	( 3.6)	98	165 0 26	165 36 32 5	153 34 5 5	0 0 0 0	0 0 0 0	12 3 17 3	-3 97

## DATE = 0304

00-01	( 0.1)	98	162	0	156 41 28 43 6	149 34 10 5	0	0	0	0	0	7 7 17 3	-1 98 1
01-02	( 0.1)	98	165	0	154 46 25 7	148 37 10 6	0	0	0	0	0	6 10 17 3	0 99 1
02-03	( 0.4)	98	165	0	151 45 23 6	147 34 7 5	0	0	0	0	0	5 10 17 3	1 99
03-04	( 4.2)	98	165	0	154 47 18 6	144 40 8 6	0	0	0	0	0	10 7 17 3	0 99
04-05	( 8.2)	98	165	0	149 44 24 5	141 38 22 7	0	0	0	0	0	8 5 25 5	0 99
05-06	( 0.2)	98	165	0	143 39 19 4	134 34 10 4	0	0	0	0	0	9 5 15 2	1 99
06-07	( 0.5)	98	165	0	139 35 68 6	129 30 20 6	0	0	0	0	0	10 5 19 2	0 99
07-08	( 0.2)	98	165	0	150 34 26 4	138 30 10 4	0	0	0	0	0	11 4 18 2	0 99

# Mt. Washington Data

08-09	( 9.1)	98	165	0	145 39 18 7	135 33 11 7	0	0	0	0	0	10 6 18 3	0	99
09-10	( 22.0)	98	165	0	153 44 19 6	142 37 13 7	0	0	0	0	0	11 6 16 3	-2 1	99
10-11	281 ( 63.6)	98	165	0	169 42 21 7	158 31 21 6	0	0	0	0	0	10 10 21 5	-4 1	97 1
11-12	139 ( 77.4)	98	165	0	181 32 15 4	172 29 19 7	0	0	0	0	0	11 3 20 7	-7	95
12-13	79 ( 95.5)	98	165	0	168 29 35 5	189 31 119 11	0	0	0	0	0	-22 -4 63 11	-7	95
13-14	25 ( 99.2)	98	165	0	183 32 13 4	285 34 11 11	0	0	0	0	0	-100 -2 15 13	-7	94
14-15	17 ( 99.4)	98	165	0	183 32 16 3	256 43 66 11	0	0	0	0	0	-71 -10 60 12	-8	94
15-16	207 ( 79.4)	98	165	0	192 23 24 9	183 15 25 7	0	0	0	0	0	15 5 23 5	-8	94
16-17	( 35.5)	98	165	0	220 16 27 3	199 11 29 6	0	0	0	0	0	21 4 20 4	-9	93
17-18	( 58.4)	98	165	0	258 20 24 2	212 14 16 4	0	0	0	0	0	46 6 19 4	-9	93
18-19	( 13.3)	98	165	0	272 23 11 3	220 14 11 2	0	0	0	0	0	52 9 11 2	-9	93
19-20	106 ( 78.7)	98	165	0	281 28 8 3	223 16 19 8	0	0	0	0	0	58 11 23 7	-9	93
20-21	1 (100.0)	98	165	0	285 29 7 2	343 0	0	0	0	0	0	-59 29	-10	93
21-22	0 (100.0)	99	165	0	285 31 10 4	000 0	0	0	0	0	0	0 0	-11	92
22-23	2 ( 99.9)	99	165	0	283 33 11 4	343 0	0	0	0	0	0	-52 39 4	-13 1	91
23-24	0 (100.0)	99	165	0	291 42 10 5	000 0	0	0	0	0	0	0 0	-15 1	89

# Mt. Washington Data

DATE = 0305

2355 050455Z 27053G57KT 0SM -SN FZFG VV000 M20/M20 RMK LGT ICG  
0555 050555Z 27050G55KT 0SM -SN FZFG VV000 M21/M21 RMK LGT ICG  
0156 050656Z 27060G66KT 0SM -SN FZFG VV000 M21/M21 RMK LGT ICG  
0256 050756Z 27066G73KT 0SM -SN FZFG VV000 M21/M21 RMK LGT ICG  
0358 050858Z 27070G79KT 0SM -SN BLSN FZFG VV000 M22/M22 RMK LGT ICG  
0456 050956Z 29071G82KT 0SM BLSN FZFG VV000 M21/M21 RMK SNE10 LGT ICG  
0558 051058Z 29071G79KT 0SM BLSN FZFG VV000 M21/M21 RMK LGT ICG  
0650 051150Z 29063G71KT 1/16SM FZFG BKN000 M22/M22 RMK FZFG BKN000 LGT ICG  
0744 051244Z 29062G71KT 1/16SM FZFG BKN000 M22/M22 RMK FZFG BKN000 LGT ICG  
0756 051256Z 29065G74KT 1/16SM FZFG BKN000 M21/M21 RMK FZFG BKN000 LGT ICG  
0952 051452Z 29063G76KT 1/16SM FZFG VV000 M21/M21 RMK LGT ICG  
1055 051555Z 29062G71KT 1/16SM FZFG BKN000 M20/M20 RMK FZFG BKN000 LGT ICG  
1158 051658Z 29053G59KT 1/16SM FZFG BKN000 M20/M20 RMK FZFG BKN000 LGT ICG  
1255 051755Z 28051G62KT 1/16SM FZFG VV000 M19/M19 RMK FZFG INTMT LGT ICG  
1358 051858Z 29050G57KT 55SM SCT/// SKC M19/M22 RMK TPS LWR SCT080 INTMT FZFG  
1458 051958Z 30052G56KT 60SM FEW/// SKC M20/M23 RMK TPS LWR FEW060  
1559 052059Z 29047G53KT 55SM PR FZFG BKN010 M20/M22 RMK VIS1/16 S-NW INTMT FZFG  
1659 052159Z 29048G55KT 50SM FEW005 FEW050 M20/M23 RMK INTMT FZFG  
1759 052259Z 27046G50KT 1/16SM FZFG VV000 M21/M21 RMK FZFG INTMT LGT ICG  
1856 052356Z 29049G53KT 65SM FEW005 M22/M24 RMK INTMT FZFG  
1957 060057Z 29047KT 65SM SKC M22/M25  
2058 060158Z 29037KT 65SM SKC M22/M29  
2152 060252Z 29032KT 65SM SKC M20/M24  
2251 060351Z 29033KT 65SM SKC M21/M27  
2350 060450Z 29031KT 65SM SKC M19/M29  
0059 060559Z 29029KT 65SM SKC M19/M31

00-01	0	(100.0)	99	165	0	307	48	000	0	0	0	0	0	0	0	0	-17	88
						8	6										1	
01-02	88	( 94.6)	98	165	0	311	58	316	35	0	0	0	0	0	-6	23	-18	86
						6	4	9	3						7	3		
02-03	246	( 68.4)	99	165	0	316	62	308	49	0	0	0	0	0	9	14	-19	85
						4	5	26	6						9	5		
03-04		( 31.2)	98	165	0	316	62	304	51	0	0	0	0	0	12	11	-20	84
			2			5	5	7	4						6	3		
04-05		( 9.6)	98	165	0	319	66	309	54	0	0	0	0	0	9	12	-20	84
			1			2	5	5	5						4	4		
05-06		( 2.6)	97	165	0	318	62	307	51	0	0	0	0	0	11	12	-20	83
			5			3	4	3	4						3	3		
06-07		( 5.2)	96	165	0	317	60	308	47	0	0	0	0	0	9	13	-21	83
			5			5	5	6	4						5	4		
07-08		( 0.6)	98	165	0	318	63	306	52	0	0	0	0	0	11	11	-21	83
			1			5	5	3	5						3	2		

# Mt. Washington Data

08-09	( 3.0)	99	165	0	319 68 2 4	306 57 2 4	0	0	0	0	12 11 3 2	-21 82
09-10	( 2.8)	99	165	0	317 61 5 5	303 49 5 5	0	0	0	0	14 12 4 3	-21 83
10-11	( 0.5)	99	165	0	316 58 7 5	302 46 6 4	0	0	0	0	14 12 4 2	-20 83
11-12	( 1.1)	99	165	0	318 52 11 6	303 42 8 5	0	0	0	0	16 10 7 3	-20 83
12-13		99	165	0	309 43 12 5	294 35 10 4	0	0	0	0	15 8 8 2	-19 84
13-14		99	165	0	317 46 37 4	302 38 11 4	0	0	0	0	15 9 7 1	-18 84
14-15		99	165	0	318 46 10 3	302 37 9 3	0	0	0	0	16 9 7 1	-18 85
15-16		99	165	0	313 44 9 3	297 35 17 3	0	0	0	0	15 9 6 1	-18 85
16-17		99	165	0	313 45 14 2	298 36 11 2	0	0	0	0	15 9 6 1	-18 85
17-18		99	165	0	314 43 9 2	298 35 6 2	0	0	0	0	16 9 6 1	-18 85
18-19		99	165	0	313 43 10 3	298 34 9 2	0	0	0	0	16 9 6 1	-19 85
19-20		92 7	165	0	326 43 11 4	309 35 14 4	0	0	0	0	17 8 8 2	-20 84
20-21		99	165	0	322 37 19 5	305 30 13 4	0	0	0	0	16 7 9 2	-21 83
21-22		99	165	0	308 30 7 2	293 25 5 1	0	0	0	0	15 5 4 1	-21 83
22-23		99	165	0	313 30 8 2	298 24 6 2	0	0	0	0	15 5 5 1	-21 82
23-24		99	165	0	314 28 7 2	299 23 4 1	0	0	0	0	15 5 5 1	-21 82

# Mt. Washington Data

DATE = 0306

2350 060450Z 29031KT 65SM SKC M19/M29  
0059 060559Z 29029KT 65SM SKC M19/M31  
0151 060651Z 27027KT 65SM FEW050 M17/M30  
0255 060755Z 27032KT 65SM OVC030 M17/M28  
0358 060858Z 27030KT 65SM OVC010 M15/M32  
0459 060959Z 26030KT 65SM OVC020 M15/M30  
0550 061050Z 26024KT 20SM OVC010 M15/M27  
0652 061152Z 26021KT 1/8SM **FZFG** VV000 M17/M17 RMK **SNB35** LGT **ICG**  
0745 061245Z 26018KT 1/8SM **-SN FZFG** VV000 M13/M13 RMK LGT **ICG**  
0851 061351Z 23017KT 1/16SM **-SN FZFG** VV000 M15/M15 RMK LGT **ICG**  
0954 061454Z 23016KT 1/8SM **-SN FZFG** VV000 M14/M14 RMK LGT **ICG**  
1054 061554Z 23018KT 1/8SM **-SN FZFG** VV000 M14/M14 RMK LGT **ICG**  
1151 061651Z 21014KT 1/8SM **-SN FZFG** VV000 M16/M16 RMK LGT **ICG**  
1251 061751Z 21016G25KT 1/8SM **-SN FZFG** VV000 M16/M16 RMK LGT **ICG**  
1354 061854Z 21023G32KT 1/16SM **-SN FZFG** VV000 M17/M17 RMK LGT **ICG**  
1453 061953Z 19026G31KT 1/16SM **-SN FZFG** VV000 M16/M16 RMK LGT **ICG**  
1550 062050Z 17023G30KT 1/16SM **-SN FZFG** VV000 M16/M16 RMK LGT **ICG**  
1654 062154Z 18024G32KT 1/16SM **-SN FZFG** **DRSN** VV000 M15/M15 RMK LGT **ICG**  
1756 062256Z 17014KT 1/16SM **-SN FZFG** **DRSN** VV000 M16/M16 RMK LGT **ICG**  
1855 062355Z 17024KT 1/16SM **-SN FZFG** VV000 M16/M16 RMK LGT **ICG**  
1955 070055Z 17032KT 0SM SN **FZFG** VV000 M16/M16 RMK LGT **ICG**  
2053 070153Z 17030KT 0SM SN **FZFG** VV000 M16/M16 RMK LGT **ICG**  
2151 070251Z 15027KT 0SM SN **FZFG** VV000 M16/M16 RMK LGT **ICG**  
2255 070355Z 13023KT 0SM SN **FZFG** VV000 M16/M16 RMK LGT **ICG**  
2351 070451Z 13021KT 1/16SM **-SN FZFG** VV000 M17/M17 RMK LGT **ICG**  
0053 070553Z 11017KT 1/16SM **-SN FZFG** VV000 M18/M18 RMK LGT **ICG**

00-01	99	165	0	308	24	295	20	0	0	0	0	14	4	-21	82
				10	1	7	1					3	1		
01-02	99	165	0	306	22	293	18	0	0	0	0	13	4	-20	83
				10	1	5	1					4	1		
02-03	99	165	0	301	25	288	21	0	0	0	0	13	4	-20	83
				17	1	7	1					5	1		
03-04	99	165	0	297	24	284	20	0	0	0	0	12	4	-19	84
				6	1	5	1					5	1		
04-05	99	165	0	291	24	279	20	0	0	0	0	13	3	-18	84
				13	1	3	1					5	1		
05-06	99	165	0	287	21	273	18	0	0	0	0	13	3	-18	85
				7	2	4	2					6	1		
06-07	99	165	0	285	15	272	13	0	0	0	0	13	2	-17	86
				8	3	5	3					6	1		
07-08	98	165	0	270	15	258	13	0	0	0	0	12	1	-16	86
				12	1	7	1					8	1	1	

# Mt. Washington Data

08-09	99	165	0	249 12 20 1	236 12 12 1	0	0	0	0	13	0	-14	87
09-10	98	165	0	247 12 13 1	233 12 5 2	0	0	0	0	14	0	-13	88
10-11	98	165	0	243 12 16 1	228 12 6 2	0	0	0	0	15	0	-13	89
11-12	98	165	0	231 12 24 2	212 11 30 3	0	0	0	0	19	1	-13	89
12-13	98	165	0	223 13 89 3	204 11 25 4	0	0	0	0	19	2	-13	90
13-14	( 0.1)	98	165	0	198 14 58 3	176 12 40 4	0	0	0	22	2	-13	89
14-15	98	165	0	187 20 21 2	167 18 13 2	0	0	0	0	21	2	-14	90
15-16	83 14	164	0	185 21 17 3	164 20 7 3	0	0	0	0	21	2	-14	89
16-17	70	164	0	179 23 15 2	161 21 6 3	0	0	0	0	18	2	-14	89
17-18	71 1	164	0	174 20 25 2	158 19 7 2	0	0	0	0	16	1	-14	89
18-19	78 2	164	0	161 21 12 2	147 20 7 2	0	0	0	0	14	1	-14	89
19-20	( 0.6)	86 4	164	0	157 26 15 2	143 25 5 2	0	0	0	14	2	-15	89
20-21	( 15.7)	98 1	164	0	150 28 13 3	135 26 10 3	0	0	0	15	2	-15	88
21-22	( 25.4)	98	164	0	147 26 12 2	134 30 14 12	0	0	0	13	-4	-15	88
22-23	( 3.6)	98	164	0	139 24 12 3	128 21 8 3	0	0	0	11	3	-15	88
23-24	( 1.5)	98	164	0	128 22 27 2	118 18 8 2	0	0	0	10	4	-15	88

# Mt. Washington Data

DATE = 0307

2351 070451Z 13021KT 1/16SM -SN FZFG VV000 M17/M17 RMK LGT ICG  
0053 070553Z 11017KT 1/16SM -SN FZFG VV000 M18/M18 RMK LGT ICG  
0159 070659Z 07021KT 1/16SM -SN FZFG VV000 M18/M18 RMK LGT ICG  
0256 070756Z 07030G36KT 1/16SM -SN FZFG VV000 M18/M18 RMK LGT ICG  
0358 070858Z 06024G32KT 1/16SM -SN FZFG VV000 M16/M16 RMK LGT ICG  
0458 070958Z 06032G37KT 1/16SM -SN FZFG VV000 M18/M18 RMK LGT ICG  
0551 071051Z 06031G37KT 1/16SM -SN FZFG VV000 M17/M17 RMK LGT ICG  
0657 071157Z 06036G41KT 1/16SM -SN FZFG VV000 M19/M19 RMK LGT ICG  
0744 071244Z 04045G52KT 1/16SM -SN FZFG VV000 M19/M19 RMK LGT ICG  
0855 071355Z 04037G52KT 1/16SM -SN FZFG VV000 M19/M19 RMK LGT ICG  
0955 071455Z 04026G36KT 1/16SM -SN FZFG VV000 M21/M21 RMK LGT ICG  
1054 071554Z 33041G51KT 1/16SM -SN FZFG VV000 M21/M21 RMK LGT ICG  
1157 071657Z 33042G61KT 1/16SM -SN FZFG VV000 M22/M22 RMK LGT ICG  
1250 071750Z 33050G63KT 1/16SM -SN FZFG VV000 M22/M22 RMK SNE1645 LGT ICG  
1354 071854Z 32049G61KT 1/8SM -SN FZFG VV000 M22/M22 RMK LGT ICG  
1452 071952Z 32048G59KT 1/8SM -SN FZFG VV000 M23/M23 RMK LGT ICG  
1553 072053Z 31050G70KT 1/8SM -SN FZFG BKN000 M24/M24 RMK FZFG BKN000 LGT ICG  
1658 072158Z 31050G62KT 1/8SM -SN FZFG SCT000 BKN080 M25/M25 RMK FZFG SCT000 LGT ICG  
1759 072259Z 31044G60KT 1/8SM -SN FZFG VV000 M26/M26 RMK LGT ICG  
1855 072355Z 32049G56KT 1/16SM -SN FZFG VV000 M26/M26 RMK LGT ICG  
1952 080052Z 32053G63KT 1/16SM -SN FZFG VV000 M27/M27 RMK LGT ICG  
2056 080156Z 30053G59KT 1/16SM -SN FZFG VV000 M27/M27 RMK LGT ICG  
2159 080259Z 30057G66KT 1/8SM -SN FZFG VV000 M26/M26 RMK FZFG BKN000 LGT ICG  
2257 080357Z 30060G70KT 65SM -SN FZFG VV000 M24/M24 RMK TPS LWR FEW060 INTMT FZFG LGT ICG  
2350 080450Z 30061G70KT 65SM -SN FZFG VV000 M23/M23 RMK TPS LWR FEW050 INTMT FZFG LGT ICG  
0055 080555Z 33060G66KT 65SM -SN FZFG VV000 M23/M31 RMK TPS LWR FEW050

00-01	98	164	0	108	20	101	17	0	0	0	0	7	3	-16	88
				19	2	13	2					7	1		
01-02	98	164	0	093	20	085	17	0	0	0	0	8	3	-16	87
				13	2	12	2					6	1		
02-03	98	164	0	078	18	066	17	0	0	0	0	12	1	-16	87
				10	2	7	2					8	2		
03-04	98	164	0	079	16	066	15	0	0	0	0	12	1	-17	87
				10	2	6	2					8	2		
04-05	( 0.1)	98	164	0	071	15	060	15	0	0	0	11	0	-17	86
				20	2	9	3					11	2		
05-06	( 0.0)	98	164	0	067	15	058	15	0	0	0	9	0	-17	87
				12	2	9	2					11	2		
06-07	98	164	0	051	12	037	14	0	0	0	0	14	-1	-17	86
				14	2	14	2					10	1		
07-08	( 0.2)	98	164	0	028	22	015	20	0	0	0	13	1	-18	86
				13	4	9	3					9	1		



# Mt. Washington Data

08-09	( 0.2)	98	164	0	023 24 13 4	011 22 11 4	0	0	0	0	12 2 10 2	-17	86
09-10		98	164	0	358 16 42 4	345 14 33 4	0	0	0	0	13 3 17 1	-17	86
10-11	( 2.2)	98	164	0	357 27 14 6	345 23 14 5	0	0	0	0	12 4 12 2	-18	86
11-12	( 16.2)	98	164	0	353 32 16 6	337 25 12 4	0	0	0	0	16 7 15 3	-18	85
12-13	263 ( 65.6)	98	164	0	350 38 63 5	325 27 8 6	0	0	0	0	25 10 18 5	-19	85
13-14	183 ( 84.9)	98	164	0	345 38 51 5	322 32 6 14	0	0	0	0	22 5 19 14	-19	84
14-15	293 ( 65.2)	98 1	164	0	336 39 14 4	319 38 11 31	0	0	0	0	17 0 15 31	-19	84
15-16	228 ( 80.0)	97 2	164	0	330 42 9 4	322 55 23 67	0	0	0	0	9 -14 23 67	-20	84
16-17	( 48.2)	98	164	0	329 39 26 4	315 43 13 44	0	0	0	0	16 -4 16 44	-21	83
17-18	275 ( 74.9)	98	164	0	331 41 11 4	315 77 47 90	0	0	0	0	14 -36 44 90	-22	83
18-19	147 ( 86.3)	98	164	0	326 44 15 4	336 79 120 72	0	0	0	0	15 -37 31 72	-23	82
19-20	64 ( 96.8)	98	164	0	333 46 12 4	321 99 47 **	0	0	0	0	9 -53 46 99	-24	81
20-21	77 ( 95.7)	98	164	0	341 46 3	028 76 124 **	0	0	0	0	41 -30 45 114	-24	80
21-22	138 ( 91.0)	98	164	0	341 47 4	313 68 29 80	0	0	0	0	27 -19 29 79	-25	79
22-23	220 ( 82.0)	98	164	0	341 48 4	314 45 11 74	0	0	0	0	27 3 9 74	-25	79
23-24	161 ( 87.4)	98	164	0	341 55 9 5	314 53 31 38	0	0	0	0	26 4 25 39	-25	79

## DATE = 0308

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# Mt. Washington Data

09-10	( 11.7)	25 1	164 0	346 65 21 5	330 54 16 5	0 0 0	0 0 0	17 11 17 2	-23 80
10-11	( 10.0)	24	164 0	347 66 15 6	328 54 5 5	0 0 0	0 0 0	19 12 14 2	-22 80
11-12	( 2.9)	23	164 0	345 63 18 6	327 52 5 5	0 0 0	0 0 0	19 11 15 2	-21 81
12-13	( 0.7)	24	164 0	334 63 18 4	318 52 4 4	0 0 0	0 0 0	16 11 10 2	-21 82
13-14	( 1.4)	24 1	164 0	333 65 14 5	317 53 6 4	0 0 0	0 0 0	15 11 12 2	-20 82
14-15	( 0.6)	23	164 0	334 63 17 4	319 52 4 4	0 0 0	0 0 0	16 11 11 2	-20 82
15-16	( 1.4)	24 1	164 0	332 63 13 4	317 52 4 4	0 0 0	0 0 0	15 11 10 2	-20 82
16-17	( 1.3)	28 2	164 0	326 63 11 4	312 52 4 4	0 0 0	0 0 0	14 11 10 2	-20 82
17-18	( 4.1)	40 2	164 0	327 65 10 4	313 53 4 4	0 0 0	0 0 0	14 12 9 2	-21 81
18-19	( 2.4)	48 2	164 0	334 65 11 4	319 53 9 4	0 0 0	0 0 0	15 12 10 2	-22 81
19-20	( 0.8)	37 10	164 0	341 62 20 4	322 51 6 4	0 0 0	0 0 0	19 11 13 2	-22 81
20-21	( 0.3)	27	164 0	342 56 16 4	324 47 4 4	0 0 0	0 0 0	19 10 13 2	-22 81
21-22	( 0.3)	26	164 0	345 58 43 4	325 48 3 4	0 0 0	0 0 0	20 10 16 2	-21 81
22-23	( 0.4)	25	164 0	343 57 33 4	324 47 15 4	0 0 0	0 0 0	20 10 15 2	-21 82
23-24	( 0.1)	23 1	164 0	349 53 16 3	331 44 6 3	0 0 0	0 0 0	18 9 13 2	-21 82

## DATE = 0309

00-01	( 0.1)	23	164	0	343	50	325	42	0	0	0	0	18	8	-20	83
					14	4	8	3					13	1		
01-02	( 0.0)	24	164	0	348	50	329	42	0	0	0	0	18	8	-20	83
		1			15	4	4	4					13	1		
02-03		24	164	0	348	49	329	41	0	0	0	0	18	8	-20	83
					25	4	10	4					13	1		
03-04	( 0.1)	25	164	0	348	49	329	41	0	0	0	0	19	8	-20	83
					15	4	6	4					14	2		
04-05		24	164	0	348	51	330	43	0	0	0	0	19	8	-20	83
					16	4	3	4					14	1		
05-06	( 0.0)	23	164	0	347	55	328	46	0	0	0	0	19	9	-20	83
					15	3	3	3					15	1		
06-07	( 0.1)	23	164	0	347	55	328	46	0	0	0	0	19	9	-20	83
					18	4	3	3					13	1		
07-08		22	164	0	348	47	331	39	0	0	0	0	17	7	-20	83
		1			14	5	6	5					12	2		

# Mt. Washington Data

08-09	( 0.0)	21	164	0	349 45 32 4	333 38 7 4	0	0	0	0	0	16 7 13 2	-19	83
09-10		20	164	0	350 41 13 5	332 35 6 4	0	0	0	0	0	18 6 13 2	-19	83
10-11		19	164	0	001 23 21 7	347 20 21 6	0	0	0	0	0	13 3 15 2	-18	84
11-12	( 0.0)	19	164	0	352 33 14 5	338 28 13 5	0	0	0	0	0	14 5 13 2	-17	85
12-13		19	164	0	337 28 20 5	323 24 14 4	0	0	0	0	0	15 4 14 2	-16	85
13-14		18	164	0	326 20 25 5	313 17 20 4	0	0	0	0	0	13 3 15 2	-15	86
14-15		18	164	0	330 19 48 4	315 16 25 4	0	0	0	0	0	13 3 15 2	-14	87
15-16		18	164	0	324 19 31 5	311 16 22 5	0	0	0	0	0	13 3 18 2	-13	87
16-17		18	164	0	330 14 39 4	315 11 34 4	0	0	0	0	0	14 2 22 2	-13	88
17-18		19	164	0	356 11 41 4	343 9 43 3	0	0	0	0	0	13 1 15 1	-13	89
18-19		19	164	0	005 7 47 3	354 7 44 3	0	0	0	0	0	13 1 23 1	-13	90
19-20		20	164	0	357 8 29 3	345 7 41 2	0	0	0	0	0	13 1 20 1	-14	89
20-21		20	164	0	030 6 45 2	349 6 70 2	0	0	0	0	0	12 0 12 1	-15	89
21-22		20	164	0	082 4 86 2	081 4 92 2	0	0	0	0	0	22 -1 35 1	-16	88
22-23		19	164	0	246 5 38 2	225 5 32 2	0	0	0	0	0	20 0 35 1	-16	87
23-24		19	164	0	258 8 36 1	247 8 35 1	0	0	0	0	0	11 0 4 1	-16	87

# Mt. Washington Data

DATE = 0310

2359 100459Z 25009KT 65SM FEW150 M25/M40 RMK AURBO  
0056 100556Z 28011KT 65SM FEW180 M11/M28 RMK AURBO  
0159 100659Z 29007KT 65SM BKN180 M12/M37 RMK AURBO  
0259 100759Z 34006KT 65SM BKN180 M24/M32 RMK AURBO  
0359 100859Z 32028KT 65SM BKN180 M13/M24  
0459 100959Z 32017KT 65SM BKN180 M11/M29  
0551 101051Z 32022KT 65SM SCT120 M11/M29  
0650 101150Z 33026KT 65SM BKN120 M11/M31  
0743 101243Z 33022KT 65SM BKN120 M11/M29  
0858 101358Z 33017KT 65SM FEW/// BKN120 M10/M25 RMK TPS LMR FEW040 SW ACSL  
0954 101454Z 34013KT 65SM BKN120 M11/M20  
1157 101657Z 34013KT 65SM SCT140 M09/M22  
1242 101742Z 33011KT 55SM BKN180 M10/M22  
1354 101854Z 01024KT BKN180 M09/M22  
1450 101950Z 36013KT 40SM FEW060 BKN180 M08/M22 RMK HZ DSNT ALQDS  
1555 102055Z 35019KT 30SM FEW/// SCT060 BKN180 RMK TPS LMR FEW040 HZ DSNT ALQDS  
1659 102159Z 02019KT 25SM FEW/// BKN080 M09/M19 RMK TPS LMR FEW040 HZ DSNT ALQDS  
1759 102259Z 02017KT 30SM FEW/// FEW001 OVC040 M11/M11 RMK TPS LMR FEW045 HZ DSNT ALQDS  
1859 102359Z 01017KT 25SM FEW/// OVC030 M10/M12 RMK TPS LMR FEW040  
1959 110059Z 02018KT 30SM FEW/// OVC030 M09/M11 RMK TPS LMR FEW040  
2051 110151Z 01020KT 1/8SM FZFG BKN000 OVC030 M10/M10 RMK FZFG BKN000 VRY LGT ICG  
2156 110256Z 01020KT 0SM FZFG VV000 M11/M11 RMK LGT ICG  
2259 110359Z 01022KT 0SM FZFG VV000 M10/M10 RMK LGT ICG  
2359 110459Z 01030G37KT 0SM FZFG VV000 M08/M08 RMK LGT ICG  
0051 110551Z 36024G30KT 0SM FZFG VV000 M09/M09 RMK LGT ICG

00-01	19	164	0	284	10	277	8	0	0	0	0	8	1	-16	87
				13	1	11	1					2			
01-02	19	164	0	286	6	277	5	0	0	0	0	9	1	-15	87
				13	2	12	2					6	1		
02-03	19	164	0	339	7	332	7	0	0	0	0	12	1	-15	87
				107	3	98	3					29	2		
03-04	19	164	0	351	11	350	9	0	0	0	0	8	1	-15	87
				106	6	134	5					20	1		
04-05	19	164	0	335	15	322	13	0	0	0	0	14	2	-15	88
				30	3	23	3					13	1		
05-06	19	164	0	351	19	335	17	0	0	0	0	16	3	-15	87
				17	3	12	3					14	1		
06-07	18	164	0	348	23	330	19	0	0	0	0	18	3	-14	87
				16	3	11	3					13	1		
07-08 243	18	164	0	357	16	344	14	0	0	0	0	13	2	-14	87
				17	4	15	4					12	1		

# Mt. Washington Data

08-09	16 1	164	0	006 12 14 2	356 11 9 2	0	0	0	0	0	10	1	-13	88
09-10	15	164	0	009 8 10 1	359 8 7 1	0	0	0	0	0	11 7	1	-12	88
10-11	16	164	0	017 10 11 2	005 10 6 2	0	0	0	0	0	12 8	1	-11	89
11-12	15	164	0	010 5 14 1	358 5 11 1	0	0	0	0	0	12 11	0	-10	90
12-13	16	164	0	011 6 25 2	356 6 24 2	0	0	0	0	0	11 20	1	-9	90
13-14	16	164	0	026 14 22 2	011 14 8 3	0	0	0	0	0	15 10	1	-8	92
14-15	16	164	0	018 9 14 3	006 9 12 3	0	0	0	0	0	12 10	1	-8	92
15-16	16 1	164	0	015 9 28 4	006 9 50 4	0	0	0	0	0	12 17	1	-8	92
16-17	18	164	0	022 14 13 3	009 13 8 3	0	0	0	0	0	13 10	1	-9	93
17-18	19	164	0	039 12 16 2	025 11 10 3	0	0	0	0	0	15 10	0	-10	92
18-19	19	164	0	040 11 15 2	025 11 8 2	0	0	0	0	0	15 9	0	-10	92
19-20	19	164	0	038 12 24 2	023 11 8 3	0	0	0	0	0	15 10	1	-11	91
20-21	20 2	164	0	046 13 24 3	031 12 10 3	0	0	0	0	0	15 9	0	-10	92
21-22	37 7	164	0	039 13 15 3	024 12 13 3	0	0	0	0	0	15 10	1	-9	92
22-23	56 5	164	0	036 14 13 3	022 13 8 3	0	0	0	0	0	14 9	1	-10	93
23-24	66 4	164	0	034 17 16 3	021 16 18 4	0	0	0	0	0	13 11	1	-10	92

# Mt. Washington Data

DATE = 0311

2359 110459Z 01030G37KT 0SM **FZFG** VV000 M08/M08 RMK LGT **ICG**  
0051 110551Z 36024G30KT 0SM **FZFG** VV000 M09/M09 RMK LGT **ICG**  
0159 110659Z 01021G27KT 0SM **FZFG** VV000 M09/M09 RMK LGT **ICG**  
0255 110755Z 34023G27KT 0SM **FZFG** VV000 M09/M09 RMK LGT **ICG**  
0358 110858Z 01019G24KT 0SM **-SN FZFG** VV000 M08/M08 RMK **SNB40** LGT **ICG**  
0458 110958Z 02021KT 1/16SM **-SN FZFG** VV000 M07/M07 RMK LGT **ICG**  
0554 111054Z 01019KT 1/16SM **FZFG** VV000 M08/M08 RMK **SNE15** LGT **ICG**  
0653 111153Z 02024G27KT 1/16SM **-SN FZFG** VV000 M08/M08 RMK **SNB40** LGT **ICG**  
0748 111248Z 02020KT 1/16SM **-SN FZFG** VV000 M08/M08 RMK LGT **ICG**  
0851 111351Z 02019KT 0SM **-SN FZFG** VV000 M08/M08 RMK LGT **ICG**  
0952 111452Z 02021KT 0SM **-SN FZFG** VV000 M07/M07 RMK LGT **ICG**  
1059 111559Z 02017KT 1/16SM **-SN FZFG** VV000 M06/M06 RMK LGT **ICG**  
1149 111649Z 02021KT 1/8SM **-SN FZFG** VV000 M06/M06 RMK LGT **ICG**  
1250 111750Z 02025KT 1/8SM **-SN FZFG** VV000 M04/M04 RMK LGT **ICG**  
1354 111854Z 02024KT 1/8SM **FZDZ FZFG** VV000 M04/M04 RMK **SNEFZDZB30** LGT **G ICG**  
1453 111953Z 02026KT 1/16SM **FZDZ FZFG** VV000 M04/M04 RMK LGT **ICG**  
1549 112049Z 02023KT 1/16SM **FZFG** VV000 M06/M06 RMK **FZFDE00**  
1658 112158Z 02026KT 1/4SM **FZFG** VV000 M06/M06 RMK LGT **ICG**  
1759 112259Z 02024KT 1/16SM **FZFG** VV000 M07/M07 RMK LGT **ICG**  
1855 112355Z 02021G28KT 1/16SM **DRSN FZFG** VV000 M08/M08 RMK LGT **ICG**  
1959 120059Z 36024G32KT 1/16SM **-SN FZFG** VV000 M09/M09 RMK **SNB20** LGT **ICG**  
2059 120159Z 36029G37KT 1/16SM **-SN FZFG** VV000 M09/M09 RMK LGT **ICG**  
2156 120256Z 02036KT 1/16SM **-SN FZFG** VV000 M09/M09 RMK LGT **ICG**  
2257 120357Z 31G37KT 1/16SM **FZFG** VV000 M07/M07 RMK **SNE15** LGT **ICG**  
2359 120459Z 02037G42KT 1/16SM **FZFG** VV000 M06/M06 RMK LGT **ICG**  
0048 120548Z 02037G42KT 1/16SM **FZFG** VV000 M07/M07 RMK LGT **ICG**

00-01	72 3	164 0	033 16	15 3	020 11	14 4	0 0	0 0	0 0	13 12	1 1	-9 1	93
01-02	66 4	164 0	014 39	11 3	004 49	10 3	0 0	0 0	0 0	11 13	1 1	-8 1	94
02-03	61 3	164 0	017 21	11 2	007 15	10 2	0 0	0 0	0 0	10 10	1 1	-9 1	93
03-04	57 5	164 0	018 31	10 2	006 10	9 2	0 0	0 0	0 0	11 11	1 1	-9 1	93
04-05	49 1	164 0	032 32	11 3	018 20	11 3	0 0	0 0	0 0	13 10	0 1	-9 1	93
05-06	45 2	164 0	028 28	10 3	016 18	10 3	0 0	0 0	0 0	12 11	0 1	-8 1	93
06-07	65 27	164 0	043 13	13 2	029 10	14 3	0 0	0 0	0 0	14 10	0 1	-8 1	94
07-08	98	164 0	054 10	13 2	041 10	13 2	0 0	0 0	0 0	13 9	0 1	-7 1	94



# Mt. Washington Data

08-09	98	164	0	053 12 13 2	040 12 6 2	0	0	0	0	13	0	-7	94
09-10	98	164	0	058 10 9 1	048 10 8 1	0	0	0	0	10	0	-7	94
10-11	98	164	0	057 11 8 2	047 11 6 1	0	0	0	0	10	0	-6	94
11-12	98	164	0	059 10 8 1	050 10 9 1	0	0	0	0	9	0	-6	94
12-13	19 10	164	0	060 12 14 1	050 12 5 1	0	0	0	0	9	0	-5	95
13-14	87 22	164	0	060 13 8 1	050 13 11 2	0	0	0	0	10	0	-4	96
14-15	98	164	0	061 14 13 2	052 14 16 2	0	0	0	0	9	0	-3	97
15-16	98	164	0	053 11 17 2	042 11 19 2	0	0	0	0	11	0	-3	97
16-17	85 28	164	0	052 12 11 2	041 11 16 2	0	0	0	0	11	0	-4	97
17-18	30 41	164	0	053 13 10 2	042 12 10 2	0	0	0	0	11	0	-5	97
18-19	24 42	164	0	043 11 15 2	033 11 14 2	0	0	0	0	11	0	-6	96
19-20	82 27	164	0	020 14 25 3	012 13 18 3	0	0	0	0	9	1	-6	96
20-21	84 27	164	0	031 16 27 4	021 15 15 4	0	0	0	0	10	0	-7	95
21-22	54 36	164	0	042 15 19 3	031 16 18 3	0	0	0	0	11	0	-8	94
22-23	85 31	164	0	057 19 8 2	046 18 8 2	0	0	0	0	11	1	-8	94
23-24	( 0.7) 79 34	164	0	065 18 10 2	054 18 9 2	0	0	0	0	10	1	-8	94

# Mt. Washington Data

DATE = 0312

2359 120459Z 02037G42KT 1/16SM **FZFG** VV000 M06/M06 RMK LGT **ICG**  
0048 120548Z 02037G42KT 1/16SM **FZFG** VV000 M07/M07 RMK LGT **ICG**  
0155 120655Z 02037KT 1/16SM **FZFG** VV000 M06/M06 RMK LGT **ICG**  
0259 120759Z 02036G45KT 1/16SM **FZFG** VV000 M07/M07 RMK LGT **ICG**  
0352 120852Z 02036G43KT 1/16SM **-SN FZFG** VV000 M08/M08 RMK **SNB30** LGT **ICG**  
0457 120957Z 02041G46KT 1/16SM **-SN FZFG** VV000 M08/M08 RMK LGT **ICG**  
0554 121054Z 02046G53KT 1/16SM **FZFG** VV000 M06/M06 RMK **SNE05** LGT **ICG**  
0651 121151Z 02044G53KT 1/16SM **FZFG** VV000 M06/M06 RMK LGT **ICG**  
0745 121245Z 02044G49KT 1/16SM **FZFG** VV000 M06/M06 RMK MOD **ICG**  
0851 121351Z 02041G48KT 1/16SM **FZFG** VV000 M06/M06 RMK LGT **ICG**  
0955 121455Z 02041G45KT 1/16SM **FZFG** VV000 M06/M06 RMK **FZFDZ** LGT **ICG**  
1058 121558Z 02032G37KT 1/16SM **FZFG** VV000 M06/M06 RMK **FZDZ** LGT **ICG**  
1158 121658Z 07035G38KT 1/16SM **-SN FZFG** M07/M07 RMK **SNB45** LGT **ICG**  
1251 121751Z 07035G41KT 1/16SM **-SN FZFG** VV000 M07/M07 RMK LGT **ICG**  
1351 121851Z 07027KT 1/16SM **FZDZ** **FZFG** VV000 M08/M08 RMK **SNEFZDZB30** LGT **GICG**  
1451 121951Z 07030KT 1/16SM **FZFG** VV000 M08/M08 RMK **FZFDZ** LGT **ICG**  
1553 122053Z 02032G38KT 1/16SM **FZFG** VV000 M09/M09 RMK LGT **ICG**  
1655 122155Z 03032G41KT 1/16SM **-SN FZFG** VV000 M09/M09 RMK **SNB25** LGT **ICG**  
1855 122355Z 05035G44KT 1/16SM **-SN FZFG** VV000 M10/M10 RMK LGT **ICG**  
1959 130059Z 05029G37KT 1/16SM **-SN FZFG** VV000 M09/M09 RMK LGT **ICG**  
2057 130157Z 05030G37KT 1/16SM **-SN FZFG** VV000 M09/M09 RMK LGT **ICG**  
2156 130256Z 06028G33KT 1/16SM **-SN FZFG** VV000 M09/M09 RMK LGT **ICG**  
2359 130459Z 05025KT 1/16SM **-SN FZFG** VV000 M10/M10 RMK LGT **ICG**  
0055 130555Z 06024KT 1/16SM **-SN FZFG** VV000 M09/M09 RMK LGT **ICG**

00-01	( 38.8)	99	164	0	066	20	057	19	0	0	0	0	9	1	-7	94
					8	2	10	2					8	2		
01-02	( 7.0)	92	164	0	065	19	056	18	0	0	0	0	9	1	-6	94
		15			13	2	6	2					8	1		
02-03	( 0.2)	90	164	0	056	18	047	16	0	0	0	0	10	2	-6	95
		16			25	3	20	3					9	2		
03-04	( 2.1)	96	164	0	056	19	046	16	0	0	0	0	9	3	-6	95
		8			12	3	8	3					9	2		
04-05	( 10.0)	98	164	0	063	20	054	18	0	0	0	0	9	3	-7	95
		4			18	2	6	2					10	2		
05-06	( 0.7)	99	164	0	071	23	057	20	0	0	0	0	13	3	-7	95
					11	3	8	2					7	2		
06-07	( 0.3)	99	164	0	076	25	061	21	0	0	0	0	14	5	-7	94
					9	2	4	3					8	2		
07-08	( 0.9)	99	164	0	074	27	063	23	0	0	0	0	11	3	-6	95
					8	2	4	2					8	2		
08-09	( 8.4)	99	164	0	073	25	061	20	0	0	0	0	12	5	-6	95

# Mt. Washington Data

09-10	( 3.2)	98	164	0	070 22 8 2	8 2	4 2	058 17 8 2	0	0	0	0	0	0	7 1	12 5 8 1	-6	95
10-11		98	164	0	070 20 18 2	18 2	060 20 6 2	0	0	0	0	0	0	0	9 0 8 1	8 1	-5	95
11-12		98	164	0	071 18 8 2	8 2	061 18 5 2	0	0	0	0	0	0	0	10 0 7 1	7 1	-5	95
12-13		98	164	0	066 17 11 2	11 2	057 17 7 2	0	0	0	0	0	0	0	9 0 7 1	7 1	-5	96
13-14		98	164	0	052 13 29 2	29 2	042 14 22 2	0	0	0	0	0	0	0	10 -1 8 1	8 1	-5	96
14-15	( 2.9)	98	164	0	036 16 11 2	11 2	025 15 6 2	0	0	0	0	0	0	0	11 0 7 2	7 2	-5	96
15-16	( 21.4)	98	164	0	022 17 13 2	13 2	012 18 9 4	0	0	0	0	0	0	0	10 -1 11 4	11 4	-5	96
16-17	( 40.3)	99	164	0	029 17 14 2	14 2	019 16 9 4	0	0	0	0	0	0	0	11 2 9 3	9 3	-6	96
17-18	( 13.8)	99	164	0	034 18 20 3	20 3	023 16 13 5	0	0	0	0	0	0	0	12 1 10 4	12 1	-6	96
18-19	( 1.6)	99	164	0	039 17 24 3	24 3	028 15 17 4	0	0	0	0	0	0	0	11 1 11 2	11 1	-7	95
19-20	( 6.8)	99	164	0	034 15 13 3	13 3	024 13 11 3	0	0	0	0	0	0	0	10 2 10 2	10 2	-8	95
20-21	( 4.5)	99	164	0	031 15 27 3	27 3	022 13 13 3	0	0	0	0	0	0	0	9 2 12 2	9 2	-8	94
21-22	( 2.9)	99	164	0	038 15 15 3	15 3	027 14 9 3	0	0	0	0	0	0	0	11 1 10 2	11 1	-8	94
22-23	( 0.0)	99	164	0	045 13 10 2	10 2	031 13 4 2	0	0	0	0	0	0	0	13 0 9 2	13 0	-8	94
23-24	( 0.1)	99	164	0	030 15 10 2	10 2	020 12 10 3	0	0	0	0	0	0	0	10 3 8 3	10 3	-8	94

**DATE = 0313**

00-01	99	164	0	035 13 39 2	024 14 28 3	0	0	0	0	12 7 -1 2	-8 94
01-02	99	164	0	052 12 22 2	039 13 16 2	0	0	0	0	13 10 -1 2	-8 93
02-03	99	164	0	054 10 12 2	042 12 8 2	0	0	0	0	12 9 -2 1	-8 93
03-04	99	164	0	050 8 12 2	039 10 9 2	0	0	0	0	11 8 -2 1	-8 93
04-05	99	164	0	014 7 32 2	007 7 28 2	0	0	0	0	7 10 -1 1	-8 93
05-06	99	164	0	355 7 21 2	347 7 19 2	0	0	0	0	8 13 -1 1	-8 94
06-07	99	164	0	299 5 67 2	290 5 65 2	0	0	0	0	7 25 0 1	-8 94
07-08	99	164	0	331 10 51 3	321 11 45 4	0	0	0	0	10 13 -2 1	-8 94

# Mt. Washington Data

08-09	98	164	0	328 14 25 4	317 16 35 4	0	0	0	0	10 -2 12 2	-7	94
09-10	98	164	0	334 12 33 4	323 13 49 5	0	0	0	0	10 -1 12 2	-7	94
10-11	98	164	0	183 15 186 6	357 15 59 6	0	0	0	0	8 0 16 1	-6	94
11-12	83 29	164	0	004 20 16 3	356 19 11 3	0	0	0	0	8 1 12 1	-6	94
12-13	18 6	164	0	360 17 19 5	350 17 24 4	0	0	0	0	10 1 13 1	-5	95
13-14	17 13	164	0	350 16 27 4	339 16 24 4	0	0	0	0	10 0 19 1	-4	95
14-15	69 40	164	0	341 14 23 5	331 14 17 5	0	0	0	0	10 0 15 2	-3	96
15-16	98	164	0	348 13 19 3	338 12 15 4	0	0	0	0	10 0 15 1	-3	96
16-17	98	164	0	355 14 20 3	349 14 15 3	0	0	0	0	6 0 14 1	-3	97
17-18	98	164	0	353 14 25 4	344 14 17 5	0	0	0	0	9 0 19 2	-4	98
18-19	98	164	0	352 20 22 6	343 20 18 6	0	0	0	0	9 1 16 2	-6	97
19-20	( 0.0)	98	164	0 356 24 15 3	346 24 6 3	0	0	0	0	10 1 11 1	-7	96
20-21	( 10.7)	98	164	0 006 22 15 3	357 20 9 3	0	0	0	0	9 2 10 2	-8	95
21-22 281	( 67.2)	98	164	0 013 19 11 3	003 17 18 4	0	0	0	0	9 3 11 3	-9	94
22-23 275	( 68.5)	98	164	0 017 13 12 3	011 11 22 4	0	0	0	0	6 1 20 4	-9	93
23-24	( 6.3)	98	164	0 042 8 26 2	042 5 21 4	0	0	0	0	1 2 16 3	-9	93

**DATE = 0314**

00-01	98	164	0	048	6	053	3	116	-6	111	-3	-5	3	-9	93
				10	1	32	1	9	1	14	1	10	1		
01-02	16 36	164	0	046	4	048	3	118	-4	116	-3	-2	0	-10	93
				7	1	20	1	7	1	20	1	17	2		
02-03	0	164	0	049	1	042	2	115	-1	68	-2	7	-1	-10	93
				21	1	47	1	20	1	105	1	44	1		
03-04	20 13	164	0	056	2	049	3	108	-2	115	-3	7	-1	-10	92
				8	1	16	1	8	1	13	1	10	1		
04-05	26 1	164	0	029	3	014	3	53	-3	-3	-3	15	-1	-10	92
				46	1	64	1	130	1	150	1	14	1		
05-06	23 1	164	0	342	4	331	4	-55	-4	-104	-4	11	0	-9	93
				30	1	32	1	149	1	122	1	7	1		
06-07	21 1	164	0	335	3	321	4	-134	-3	-156	-4	14	-1	-9	93
				18	1	15	1	96	1	15	1	10	1		
07-08	18 1	164	0	032	3	024	4	90	-3	103	-4	8	-1	-9	92
				61	1	46	1	97	1	96	1	9	1		

# Mt. Washington Data

08-09	16	164	0	019	5	006	5	122	-5	62	-5	12	0	-9	92
				18	1	19	1	84	1	152	1	5	1		
09-10	15	164	0	352	1	335	2	-40	-1	-127	-2	17	-1	-8	92
	1			21	2	35	1	164	2	108	1	17	1		
10-11	15	164	0	333	1	317	2	-145	-1	-144	-2	16	-1	-7	93
	1			18	1	29	1	81	1	51	1	16	1		
11-12	14	164	0	345	2	332	3	-136	-2	-146	-3	13	-1	-5	93
	3	1		24	1	26	1	109	1	80	1	18	1	1	
12-13	14	157	0	351	1	341	2	-59	-1	-85	-2	10	-1	-3	95
	2	6		26	1	34	1	151	1	132	1	18	1		
13-14	14	135	0	044	1	034	2	51	-1	39	-2	12	-1	-2	96
	1	17		39	1	77	1	99	1	121	1	41	1		
14-15	14	093	0	018	2	308	2	13	-2	19	-2	23	-1	0	97
		31		57	2	90	1	105	2	107	1	41	1	1	
15-16	15	067	0	285	1	256	2	-37	-1	-42	-2	8	-1	1	98
		13		102	1	117	1	118	1	114	1	52	1		
16-17	24	062	0	168	4	153	4	-106	-4	-91	-4	15	0	1	99
	8			101	2	83	1	36	2	32	1	11	1		
17-18	36	062	0	165	6	150	6	-104	-6	-88	-6	16	1	-1	99
	6			14	1	20	1	14	1	12	1	6	1	1	
18-19	41	062	0	164	8	148	6	-102	-8	-86	-6	16	1	-3	100
	4			24	2	18	2	14	2	13	2	5	1	1	
19-20	36	062	0	195	6	176	6	-134	-6	-115	-6	19	0	-5	98
	2			18	1	17	1	10	1	9	1	4	1	1	1
20-21	33	062	0	178	9	160	8	-116	-9	-99	-8	18	1	-7	97
	2			9	1	8	1	7	1	5	1	5	1		
21-22	33	062	0	173	10	156	8	-112	-10	-94	-8	17	1	-8	95
	2			10	1	5	1	8	1	5	1	6	1		
22-23	33	062	0	162	11	147	9	-101	-11	-85	-9	16	2	-8	94
	2			10	1	6	1	9	1	5	1	8	1		
23-24	35	062	0	147	11	134	8	-85	-11	-73	-8	13	3	-9	94
	2			14	2	8	2	13	2	8	2	9	1		

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2352	150452Z	15007KT	1/16SM	-SN FZFG	VV000	M10/M10	RMK	SNB30	VRY	LGT	ICG
0049	150549Z	15008KT	1/16SM	-SN FZFG	VV000	M11/M11	RMK	LGT	ICG		
0156	150656Z	15007KT	1/16SM	-SN FZFG	VV000	M11/M11	RMK	LGT	ICG		
0251	150751Z	15006KT	1/16SM	-SN FZFG	VV000	M12/M12	RMK	LGT	ICG		
0350	150850Z	15008KT	1/16SM	-SN FZFG	VV000	M12/M12	RMK	LGT	ICG		
0459	150959Z	15009KT	1/16SM	-SN FZFG	VV000	M13/M13	RMK	LGT	ICG		
0556	151056Z	15008KT	1/16SM	-SN FZFG	VV000	M13/M13	RMK	LGT	ICG		
0650	151150Z	15009KT	1/16SM	-SN FZFG	VV000	M13/M13	RMK	LGT	ICG		
0745	151245Z	15008KT	1/16SM	-SN FZFG	VV000	M13/M13	RMK	LGT	ICG		
0851	151351Z	07010KT	1/16SM	-SN FZFG	VV000	M11/M11	RMK	LGT	ICG		
0945	151445Z	07012KT	1/16SM	-SN FZFG	VV000	M12/M12	RMK	LGT	ICG		
1051	151551Z	07011KT	1/16SM	-SN FZFG	VV000	M11/M11	RMK	LGT	ICG		
1148	151648Z	07013KT	1/16SM	-SN FZFG	VV000	M12/M12	RMK	LGT	ICG		
1250	151750Z	07017KT	1/16SM	-SN FZFG	VV000	M12/M12	RMK	LGT	ICG		
1451	151951Z	07021KT	0SM	-SN FZFG	VV000	M13/M13	RMK	LGT	ICG		
1556	152056Z	04035KT	0SM	-SN FZFG	VV000	M13/M13	RMK	LGT	ICG		
1658	152158Z	03037G49KT	0SM	-SN FZFG	VV000	M11/M11	RMK	LGT	ICG		
1759	152259Z	03046G56KT	0SM	-SN FZFG	VV000	M14/M14	RMK	LGT	ICG		
1853	152353Z	35039G55KT	0SM	-SN BLSN FZFG	VV000	M14/M14	RMK	LGT	ICG		
1959	160059Z	32048G61KT	0SM	-SN BLSN FZFG	VV000	M14/M14	RMK	LGT	ICG		
2055	160155Z	32049G59KT	0SM	-SN BLSN FZFG	VV000	M14/M14	RMK	LGT	ICG		
2158	160258Z	32056G76KT	0SM	-SN BLSN FZFG	VV000	M14/M14	RMK	LGT	ICG		
2259	160359Z	31065G75KT	0SM	-SN BLSN FZFG	VV000	M14/M14	RMK	LGT	ICG		
2359	160459Z	31066G78KT	0SM	-SN BLSN FZFG	VV000	M14/M14	RMK	LGT	ICG		
0055	160555Z	31070G83KT	0SM	BLSN FZFG	VV000	M15/M15	RMK	SNE35	LGT	ICG	
00-01	32	062	0	161	10	146	8	-100	-10	-84	-8
	1			43	2	37	1	10	2	7	1
01-02	35	062	0	153	10	139	8	-92	-10	-77	-8
	1			15	2	14	1	12	2	9	1
02-03	34	062	0	151	9	136	7	-89	-9	-75	-7
	1			22	2	18	1	14	2	12	1
03-04	32	062	0	140	13	127	9	-78	-13	-65	-9
	1			13	2	7	1	9	2	6	1
04-05	31	062	0	138	17	125	11	-77	-17	-64	-11
	1			10	3	7	2	10	3	7	2
05-06	32	062	0	137	16	125	11	-76	-16	-63	-11
	1			10	3	7	2	9	3	6	2
06-07	32	062	0	136	15	124	10	-74	-15	-62	-10
	2			14	3	13	1	11	3	9	1
07-08	28	062	0	115	18	105	11	-53	-18	-44	-11
	3			21	2	18	2	8	2	7	2



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08-09	24 2	062	0	097 13 16 2	090 9 11 1	-36 -13 12 2	-28 -9 10 1	8 4 4 1	-11 91
09-10	21 2	062	0	088 12 11 2	081 10 9 1	-26 -12 10 2	-20 -10 9 1	7 2 4 2	-11 91
10-11	18 1	062	0	077 12 4 2	071 11 4 1	-15 -12 3 2	-10 -11 2 1	5 1 3 1	-10 91
11-12	19 1	062	0	076 13 5 2	069 13 4 1	-14 -13 4 2	-8 -13 4 1	6 0 4 1	-9 92
12-13	17	061	0	078 16 6 2	072 14 4 2	-16 -16 5 2	-11 -14 4 2	5 2 5 1	-9 92
13-14	17	061	0	068 13 8 1	058 14 11 1	-6 -13 6 1	4 -14 6 1	10 -1 6 1	-9 93
14-15	17	061	0	052 13 13 2	039 14 11 2	9 -13 11 2	22 -14 10 2	13 -1 8 1	-8 93
15-16	18	061	0	032 20 10 3	019 18 7 2	29 -20 8 3	42 -18 6 2	13 2 6 1	-9 93
16-17	( 0.1)	19	061	0 018 24 13 3	006 22 7 3	43 -24 11 3	55 -22 7 3	12 2 8 1	-9 93
17-18	( 23.5)	20	061	0 000 33 11 4	350 28 10 4	61 -33 11 4	71 -28 8 4	10 4 9 2	-10 93
18-19	274 ( 50.1)	20	061	0 357 33 15 4	345 29 8 5	64 -33 12 4	76 -29 8 5	12 4 13 3	-11 92
19-20	114 ( 83.1)	21 1	035 46	0 353 35 24 5	332 32 39 9	42 -35 36 5	47 -32 70 9	5 1 55 10	-12 92
20-21	3 ( 99.7)	30 5	340 15	0 342 19 16 6	239 33 3	-2 -19 17 6	101 -33 13 3	-10 -16 140 11	-12 91
21-22	4 ( 99.6)	45 3	340 20	0 340 12 18 2	287 52 24	0 -12 16 2	48 -52 38 24	60 -39 17 25	-12 91
22-23	1 ( 99.9)	78 21	331 15	0 332 15 16 4	312 65	-1 -15 14 4	26 -65	21 -45	-13 90
23-24	0 (100.0)	98	328 12	0 328 18 19 2	000 0	0 -18 18 2	0 0	0 0	-13 90

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00-01	1 ( 99.9)	98	326 41	0	326 16 10 2	318 60	0 -16 12 2	16 -60	7 -44	-13	90
01-02	131 ( 83.6)	98	330 16	0	327 21 13 2	321 58 5 9	2 -21 12 2	10 -58 13 9	8 -37 10 8	-13	90
02-03	186 ( 72.4)	97 11	330 35	0	329 20 21 3	322 57 8 11	1 -20 16 3	11 -57 16 11	8 -37 11 10	-14	90
03-04	( 43.7)	56 47	331 18	0	324 26 16 2	321 61 6 10	7 -26 16 2	10 -61 17 10	2 -35 13 9	-14	89
04-05	285 ( 44.8)	98 1	329 26	0	311 30 13 5	320 61 7 10	18 -30 16 5	10 -61 19 10	-9 -31 10 9	-15	89
05-06	266 ( 53.4)	98 5	346 52	0	316 33 16 2	316 78 35 53	29 -33 31 2	28 -78 45 53	0 -45 36 53	-16	88
06-07	( 22.5)	84 33	039 142	0	311 30 28 3	322 59 5 9	-10 -30 50 3	-27 -59 41 9	-11 -28 13 7	-16	88
07-08	202 ( 66.2)	48 48	300 53	0	308 33 23 3	319 59 24 20	-8 -33 53 3	-13 -59 57 20	-10 -27 24 20	-16	87

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08-09	274	( 47.3)	60	114	0	321	43	318	58	24	-43	31	-58	7	-14	-16	87
			46	189		33	9	24	30	57	9	60	30	30	33		
09-10		( 28.5)	95	209	0	350	61	327	48	-31	-61	-18	-48	24	12	-16	87
			14	113		26	8	15	8	77	8	59	8	17	7		
10-11		( 32.0)	98	072	0	349	64	326	50	-25	-64	-9	-50	24	15	-16	87
			6	139		30	8	12	9	74	8	63	9	17	7		
11-12		( 31.2)	97	016	0	004	64	337	47	-15	-64	7	-47	27	16	-16	87
			9	101		19	10	16	9	67	10	61	9	17	7		
12-13		( 27.2)	94	317	0	353	62	330	49	-29	-62	-12	-49	24	14	-15	87
			13	70		28	10	17	10	67	10	59	10	16	6		
13-14		( 39.9)	86	299	0	310	58	305	46	-8	-58	-4	-46	5	11	-14	88
			23	62		49	8	28	8	63	8	56	8	15	4		
14-15		( 26.5)	99	231	0	299	57	305	46	-15	-57	-19	-46	-5	10	-13	89
				100		17	7	11	7	50	7	52	7	11	4		
15-16		( 24.3)	99	247	0	292	60	303	49	4	-60	-9	-49	-11	10	-12	90
				104		9	6	9	6	53	6	52	6	8	3		
16-17		( 6.2)	98	280	0	290	56	296	49	-10	-56	-16	-49	-6	7	-12	91
				77		14	4	7	5	46	4	45	5	8	3		
17-18		( 4.5)	98	251	0	297	54	295	47	-33	-54	-31	-47	2	6	-12	91
				55		9	3	5	4	32	3	31	4	6	2		
18-19		( 2.1)	98	071	0	298	52	295	46	27	-52	30	-46	3	6	-12	91
				131		6	3	5	3	51	3	51	3	6	2		
19-20		( 7.5)	99	224	0	300	58	296	50	-47	-58	-42	-50	4	8	-12	91
				68		17	5	11	4	43	5	43	4	6	3		
20-21		( 7.2)	99	118	0	302	58	296	50	17	-58	23	-50	6	9	-11	91
				166		10	4	5	4	70	4	69	4	7	3		
21-22		( 2.5)	99	020	0	298	58	294	49	82	-58	87	-49	4	10	-11	91
				23		12	4	6	4	9	4	9	4	7	2		
22-23		( 6.7)	99	071	0	308	58	297	49	44	-58	55	-49	11	10	-11	92
				82		18	4	7	4	83	4	74	4	13	2		
23-24		( 15.8)	99	173	0	348	61	296	51	-57	-61	-55	-51	51	10	-10	92
				79		16	4	5	4	122	4	79	4	14	3		

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2357	170457Z	28073G82KT	OSM	DRSN	FZFG	VV000	M11/M11	RMK	LGT	ICG				
0050	170550Z	28071G82KT	OSM	DRSN	FZFG	VV000	M11/M11	RMK	LGT	ICG				
0159	170659Z	28070G81KT	OSM	DRSN	FZFG	VV000	M11/M11	RMK	LGT	ICG				
0253	170753Z	28070G80KT	OSM	DRSN	FZFG	VV000	M11/M11	RMK	LGT	ICG				
0353	170853Z	28069G80KT	OSM	DRSN	FZFG	VV000	M11/M11	RMK	LGT	ICG				
0459	170959Z	28064G78KT	OSM	DRSN	FZFG	VV000	M10/M10	RMK	LGT	ICG				
0558	171058Z	28063G71KT	OSM	DRSN	FZFG	VV000	M10/M10	RMK	LGT	ICG				
0651	171151Z	28070G88KT	OSM	DRSN	FZFG	VV000	M10/M10	RMK	LGT	ICG				
0744	171244Z	28070G82KT	OSM	DRSN	FZFG	VV000	M10/M10	RMK	LGT	ICG				
0853	171353Z	28067G75KT	OSM	DRSN	FZFG	VV000	M09/M09	RMK	LGT	ICG				
0950	171450Z	28068G81KT	OSM	DRSN	FZFG	M09/M09	RMK	LGT	ICG					
1056	171556Z	28060G70KT	OSM	DRSN	FZFG	VV000	M08/M08	RMK	LGT	ICG				
1147	171647Z	28052G60KT	OSM	DRSN	FZFG	VV000	M08/M08	RMK	LGT	ICG				
1250	171750Z	29060G70KT	1/16SM	DRSN	FZFG	VV000	M08/M08	RMK	LGT	ICG				
1359	171859Z	28061G67KT	50SM	DRSN	OVC008	M06/M07								
1459	171959Z	29050G62KT	55SM	FEW005	SCT100	M06/M08								
1559	172059Z	28048G61KT	55SM	FEW006	SCT100	M06/M08								
1659	172159Z	27050G55KT	50SM	FEW006	SCT100	M06/M07	RMK	HZ	DSNT	ALQDS				
1758	172258Z	28057G63KT	50SM	SCT100	M06/M09	RMK	HZ	DSNT	ALQDS					
1852	172352Z	27051KT	45SM	SCT100	M06/M08	RMK	HZ	DSNT	ALQDS					
1952	180052Z	27048KT	65SM	FEW010	SCT100	M06/M06								
2051	180151Z	27048KT	65SM	OVC005	M05/M07									
2158	180258Z	27046G51KT	65SM	OVC001	M05/M06									
2359	180459Z	27055G64KT	65SM	OVC005	M02/M04									
0058	180558Z	27048G57KT	20SM	OVC002	M02/M02									
00-01	( 11.0)	99	087	0	358	63	296	53	-35 -63	-33 -53	62	11	-10	92
			117		7	4	5	4	133	4	100	4		
01-02	( 4.8)	99	276	0	358	60	296	50	-26 -60	-20 -50	62	9	-10	92
			117		9	4	6	4	122	4	98	4		
02-03	( 2.2)	99	185	0	357	60	294	50	-27 -60	-24 -50	64	9	-10	92
			125		7	4	4	4	130	4	106	4		
03-04	( 3.4)	99	198	0	359	59	292	51	-29 -59	-24 -51	67	9	-9	92
			110		10	3	10	4	129	3	96	4		
04-05	( 9.6)	98	084	0	006	57	297	49	35 -57	-27 -49	69	8	-9	93
			109		9	4	6	4	130	4	101	4		
05-06	( 1.7)	99	098	0	011	52	297	47	65 -52	-31 -47	74	5	-9	93
			137		15	4	6	4	126	4	93	4		
06-07	( 25.8)	99	100	0	022	57	295	53	77 -57	-30 -53	87	4	-9	93
			115		8	5	6	5	104	5	106	5		
07-08	( 0.8)	98	113	0	020	57	299	53	93 -57	-37 -53	82	3	-9	93
			148		8	5	6	4	99	5	104	4		

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08-09	( 5.5)	99	095 0	015 56	298 52	72 -56	-35 -52	77 4	-9 93
			118	10 5	7 4	101 5	107 4	8 5	
09-10	( 0.4)	98	109 0	011 59	299 50	78 -59	-36 -50	72 9	-9 93
			142	9 5	10 5	113 5	108 5	7 3	
10-11	( 0.2)	98	100 0	005 53	294 46	34 -53	-35 -46	71 7	-8 93
			112	9 4	7 4	130 4	110 4	7 2	
11-12	( 0.2)	98	166 0	005 47	293 41	45 -47	-25 -41	72 5	-8 93
			114	13 4	9 4	124 4	112 4	6 2	
12-13	( 1.9)	98	099 0	005 50	293 44	37 -50	-30 -44	72 6	-8 94
			96	10 4	9 4	129 4	108 4	7 2	
13-14	( 0.2)	98	267 0	360 45	287 41	-3 -45	-25 -41	68 5	-7 94
			124	9 3	8 3	135 3	109 3	39 2	
14-15		98	255 0	001 47	290 42	14 -47	-35 -42	70 5	-6 94
			117	9 3	6 3	136 3	109 3	24 2	
15-16	( 0.1)	98	112 0	002 42	291 37	24 -42	-39 -37	71 5	-6 95
			113	10 3	6 3	147 3	108 3	7 2	
16-17		98	129 0	356 39	283 35	-54 -39	-59 -35	70 4	-5 95
			84	12 2	13 2	150 2	105 2	31 2	
17-18		98	167 0	354 44	280 40	-78 -44	-28 -40	72 4	-5 95
			101	13 3	5 3	122 3	110 3	18 2	
18-19		98	117 0	353 41	280 37	-101 -41	-37 -37	73 4	-6 96
			105	4 2	3 3	117 2	109 3	4 1	
19-20		98	266 0	357 43	286 38	-54 -43	-19 -38	71 4	-6 95
			125	4 2	4 3	136 2	114 3	4 1	
20-21		98	156 0	360 40	289 35	-33 -40	-67 -35	71 4	-6 95
			70	7 2	4 2	159 2	93 2	5 1	
21-22		98	176 0	001 38	291 34	14 -38	-103 -34	70 4	-6 95
			38	7 2	6 2	176 2	45 2	5 1	
22-23		98	166 0	001 39	290 34	9 -39	-72 -34	71 4	-6 95
			65	9 3	5 3	167 3	84 3	6 1	
23-24		98	172 0	356 44	284 39	-119 -44	-85 -39	72 4	-5 95
			66	5 3	5 3	125 3	74 3	4 1	

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00-01	98	173	0	354	43	284	39	-134	-43	-93	-39	68	5	-4	96
		54		13	4	8	4	107	4	60	4	18	2		
01-02	98	165	0	353	32	275	29	-93	-32	-87	-29	73	3	-3	96
		57		13	3	7	3	138	3	69	3	41	1		
02-03	98	265	0	347	24	266	22	-32	-24	-75	-22	21	2	-2	97
		125		17	3	5	3	126	3	110	3	123	1		
03-04	98	272	0	344	24	265	23	-50	-24	-76	-23	35	2	-2	97
		111		17	2	4	2	115	2	108	2	107	1		
04-05	98	278	0	344	25	264	23	-35	-25	-78	-23	22	2	-2	98
		102		14	2	5	3	117	2	111	3	121	1		
05-06	40	273	0	339	26	260	25	-43	-26	-73	-25	48	2	-1	98
	35	99		19	3	7	3	114	3	104	3	92	2		
06-07	18	211	0	337	29	259	27	-44	-29	-44	-27	49	2	1	98
		109		13	3	5	4	99	3	101	4	88	2	1	
07-08	18	276	0	334	30	257	28	-57	-30	19	-28	64	2	0	98
		17		12	2	4	3	23	2	16	3	61	2		

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08-09	19 3	281 28	0	343 29	29 3	262 16	27 3	-54 50	-29 3	19 16	-27 3	30 113	2 2	0	99
09-10	35 15	286 22	0	346 30	26 3	266 9	24 3	-52 48	-26 3	19 13	-24 3	51 90	2 1	0	99
10-11	98	296 14	0	353 24	34 2	275 3	30 2	-57 16	-34 2	22 10	-30 2	65 65	3 1	1	99
11-12	98	296 19	0	354 18	32 3	271 6	29 3	-56 29	-32 3	25 10	-29 3	46 103	2 1	-1 1	99
12-13	98	309 24	0	354 19	31 3	272 5	29 3	-45 17	-31 3	38 10	-29 3	38 110	2 2	-2 99	99
13-14	( 3.5)	316 14	0	353 17	36 5	273 5	33 4	-37 17	-36 5	43 8	-33 4	56 84	3 2	-3 99	99
14-15	( 4.1)	314	0	355 15	39 7	282 16	34 6	-41 8	-39 7	32 5	-34 6	72 18	5 2	-4 98	98
15-16	( 3.8)	314	0	356 10	45 5	282 6	39 4	-42 10	-45 5	32 6	-39 4	71 31	6 2	-5 98	98
16-17	( 2.9)	314	0	354 9	52 4	282 5	44 4	-41 9	-52 4	32 4	-44 4	72 20	7 2	-6 98	98
17-18	98	314	0	353 12	52 4	281 6	45 4	-39 8	-52 4	32 5	-45 4	72 9	8 2	-7 97	97
18-19	( 0.1)	98	314	0	354 8	46 5	287 5	38 4	-41 8	26 5	-38 4	66 19	7 2	-8 96	96
19-20	( 0.2)	98	314	0	355 16	49 5	287 13	42 5	-41 8	26 5	-42 4	67 8	7 2	-8 95	95
20-21	( 6.9)	98	314	0	355 11	51 3	284 6	43 3	-41 11	30 4	-43 3	71 11	9 2	-8 94	94
21-22	( 3.4)	98	314	0	353 11	53 3	282 3	44 3	-39 11	32 2	-44 3	71 11	9 2	-9 94	94
22-23	( 24.5)	98	314	0	002 18	52 3	287 8	44 4	-49 11	27 6	-44 4	75 10	8 2	-9 93	93
23-24	207 ( 64.1)	98	314	0	009 14	51 4	293 14	43 4	-55 9	21 5	-43 4	74 7	8 3	-9 93	93

# Mt. Washington Data

DATE = 0319

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0258	190758Z	28056G67KT	OSM	-SN	BLSN	FZFG	VV000	M14/M14	RMK	LGT	ICG				
0359	190859Z	28057G69KT	OSM	-SN	BLSN	FZFG	VV000	M14/M14	RMK	LGT	ICG				
0459	190959Z	29058G65KT	OSM	-SN	BLSN	FZFG	VV000	M13/M13	RMK	LGT	ICG				
0553	191053Z	29066G79KT	OSM	-SN	BLSN	FZFG	VV000	M13/M13	RMK	LGT	ICG				
0652	191152Z	29063G74KT	OSM	BLSN	FZFG	VV000	M14/M14	RMK	LGT	ICG					
0743	191243Z	29059G68KT	OSM	BLSN	FZFG	VV000	M14/M14	RMK	LGT	ICG					
0858	191358Z	29063G70KT	OSM	BLSN	FZFG	VV000	M13/M13	RMK	LGT	ICG					
0954	191454Z	29056G63KT	OSM	FZFG	VV000	M13/M13	RMK	LGT	ICG						
1057	191557Z	30057G63KT	OSM	BLSN	FZFG	VV000	M12/M12	RMK	LGT	ICG					
1158	191658Z	30053G63KT	OSM	BLSN	FZFG	VV000	M12/M12	RMK	LGT	ICG					
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1352	191852Z	29053G58KT	OSM	BLSN	FZFG	VV000	M13/M13	RMK	LGT	ICG					
1455	191955Z	29055G65KT	OSM	BLSN	FZFG	VV000	M13/M13	RMK	LGT	ICG					
1550	192050Z	30056G64KT	OSM	BLSN	FZFG	VV000	M13/M13	RMK	LGT	ICG					
1652	192152Z	30057G68KT	OSM	BLSN	FZFG	VV000	M13/M13	RMK	LGT	ICG					
1755	192255Z	30053G62KT	OSM	BLSN	FZFG	VV000	M14/M14	RMK	LGT	ICG					
1850	192350Z	30049G57KT	OSM	BLSN	FZFG	VV000	M14/M14	RMK	LGT	ICG					
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2258	200358Z	30044G54KT	OSM	-SN	BLSN	FZFG	VV000	M15/M15	RMK	LGT	ICG				
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01-02	( 4.6)	98	314	0	003	51	294	42	0	0	0	70	9	-9	93
					10	6	7	4				9	3		
02-03	( 6.1)	98	314	0	005	43	294	41	0	0	0	70	2	-9	93
					15	9	4	4				12	7		
03-04	164 ( 71.4)	98	314	0	016	41	297	46	0	0	0	73	0	-10	93
					22	8	12	6				12	6		
04-05	154 ( 78.7)	98	314	0	049	53	327	34	0	0	0	77	18	-11	93
					17	7	18	16				37	16		
05-06	175 ( 74.5)	98	314	0	025	52	314	35	0	0	0	74	17	-11	92
					35	8	20	7				27	7		
06-07	256 ( 56.8)	98	314	0	024	55	308	36	0	0	0	74	18	-12	91
					32	7	14	7				16	7		
07-08	220 ( 64.9)	98	314	0	050	59	326	34	0	0	0	81	23	-12	91
					19	10	23	7				15	8		



# Mt. Washington Data

08-09 227 ( 62.2) 98	314	0	031 47 31 9	320 31 11 7	0	0	0	0	0	72 15 19 8	-12	91
09-10 ( 20.7) 98	314	0	355 44 6	308 31 5 4	0	0	0	0	0	47 13 5 6	-12	91
10-11 ( 8.2) 98	314	0	355 49 4	306 34 3 4	0	0	0	0	0	50 16 4 2	-12	91
11-12 ( 3.8) 98	314	0	355 47 4	307 35 3 4	0	0	0	0	0	49 13 2 4	-12	90
12-13 ( 1.1) 98	314	0	355 48 3	306 34 2 4	0	0	0	0	0	50 13 3 3	-12	91
13-14 ( 3.5) 98	314	0	356 45 1 4	300 35 5 3	0	0	0	0	0	56 10 5 3	-12	91
14-15 ( 3.7) 98	314	0	003 46 12 4	299 35 11 3	0	0	0	0	0	64 11 10 3	-12	91
15-16 ( 4.5) 98	314	0	009 42 27 7	299 35 3 3	0	0	0	0	0	70 7 12 7	-12	91
16-17 ( 2.6) 98	314	0	010 49 19 4	300 36 4 4	0	0	0	0	0	70 13 13 3	-12	91
17-18 ( 12.7) 98	314	0	006 32 26 10	300 37 5 4	0	0	0	0	0	66 -4 8 12	-12	91
18-19 ( 22.2) 98	314	0	009 17 23 11	298 38 8 4	0	0	0	0	0	70 -21 19 13	-12	91
19-20 ( 6.8) 98	314	0	005 40 11 3	295 34 6 3	0	0	0	0	0	70 6 8 2	-12	91
20-21 ( 5.3) 98	314	0	005 42 12 3	296 35 7 3	0	0	0	0	0	70 6 9 2	-12	91
21-22 ( 4.5) 98	314	0	007 39 16 4	297 32 12 4	0	0	0	0	0	71 7 12 3	-13	91
22-23 ( 5.1) 98	314	0	005 36 16 4	295 30 6 4	0	0	0	0	0	70 7 12 2	-13	90
23-24 ( 2.5) 98	314	0	005 34 18 3	295 27 7 3	0	0	0	0	0	70 7 13 2	-13	90

# Mt. Washington Data

DATE = 0320

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 1550 202050Z 30030KT 1/16SM FZFG VV000 M15/M15 RMK LGT ICG  
 1658 202158Z 28017G31KT 1/16SM FZFG VV000 M15/M15 RMK FZFG INTMT LGT ICG  
 1753 202253Z 3109KT 1/16SM FZFG BKN000 M15/M15 RMK FZFG BKN000 LGT ICG  
 1856 202356Z 33012KT 50SM BKN/// SKC M11/M17 RMK TPS LWR BKN050  
 1955 210055Z 31008KT 15SM SCT/// SKC M11/M15 RMK TPS LWR FFW050  
 2054 210154Z 30010KT 65SM SKC M11/M17  
 2153 210253Z 31007KT 65SM SKC M10/M18  
 2259 210359Z 31003KT 65SM SKC M10/M17  
 2358 210458Z 18004KT 65SM SKC M10/M17  
 0057 210557Z 18006KT 65SM SKC M10/M21

00-01	( 4.9)	98	314	0	006 35	298 28	0	0	0	0	68	7	-13	90
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01-02	( 3.5)	98	314	0	012 38	306 30	0	0	0	0	66	8	-13	90
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02-03	( 13.3)	98	314	0	356 38	290 35	0	0	0	0	65	3	-13	90
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03-04	( 9.7)	98	314	0	359 36	292 31	0	0	0	0	66	5	-14	90
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04-05	( 2.8)	98	314	0	002 35	294 28	0	0	0	0	67	7	-14	90
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05-06	( 2.9)	98	314	0	004 36	295 28	0	0	0	0	70	7	-14	89
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06-07	( 2.2)	98	314	0	003 38	295 31	0	0	0	0	68	7	-15	89
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07-08	( 3.6)	98	314	0	012 38	301 32	0	0	0	0	71	6	-15	89
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# Mt. Washington Data

08-09	( 1.2)	98	314	0	012 35 17 4	301 29 10 3	0	0	0	0	0	70 6 11 2	-15 88
09-10	( 2.1)	98	314	0	007 36 13 3	299 30 9 3	0	0	0	0	0	68 7 10 2	-15 88
10-11	( 0.5)	98	314	0	001 38 14 2	295 31 6 3	0	0	0	0	0	66 6 9 1	-15 88
11-12	( 0.8)	93 21	314	0	003 35 14 3	294 29 15 3	0	0	0	0	0	68 6 10 2	-15 88
12-13	( 1.0)	24 9	314	0	357 34 10 2	290 29 7 3	0	0	0	0	0	67 5 9 2	-14 88
13-14	( 0.1)	32 4	314	0	355 36 10 2	289 31 3 2	0	0	0	0	0	66 5 8 1	-14 89
14-15	( 0.2)	30 5	314	0	355 33 30 2	289 28 4 1	0	0	0	0	0	66 4 8 1	-14 89
15-16		15 12	314	0	355 31 9 3	289 27 7 2	0	0	0	0	0	66 4 9 1	-13 89
16-17	( 0.0)	14 14	314	0	354 26 17 3	283 23 6 3	0	0	0	0	0	71 3 21 1	-13 90
17-18		1 4	314	0	356 14 31 4	284 13 12 4	0	0	0	0	0	69 1 32 1	-13 90
18-19		7 11	314	0	038 14 41 4	326 10 37 2	0	0	0	0	0	73 5 7 3	-13 90
19-20		31 2	314	0	030 10 15 3	318 8 12 2	0	0	0	0	0	72 2 5 2	-13 90
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21-22		27 2	314	0	050 5 20 2	338 4 22 1	0	0	0	0	0	72 1 6 1	-13 90
22-23		27 2	314	0	178 2 90 2	109 3 71 1	0	0	0	0	0	69 -1 13 1	-13 90
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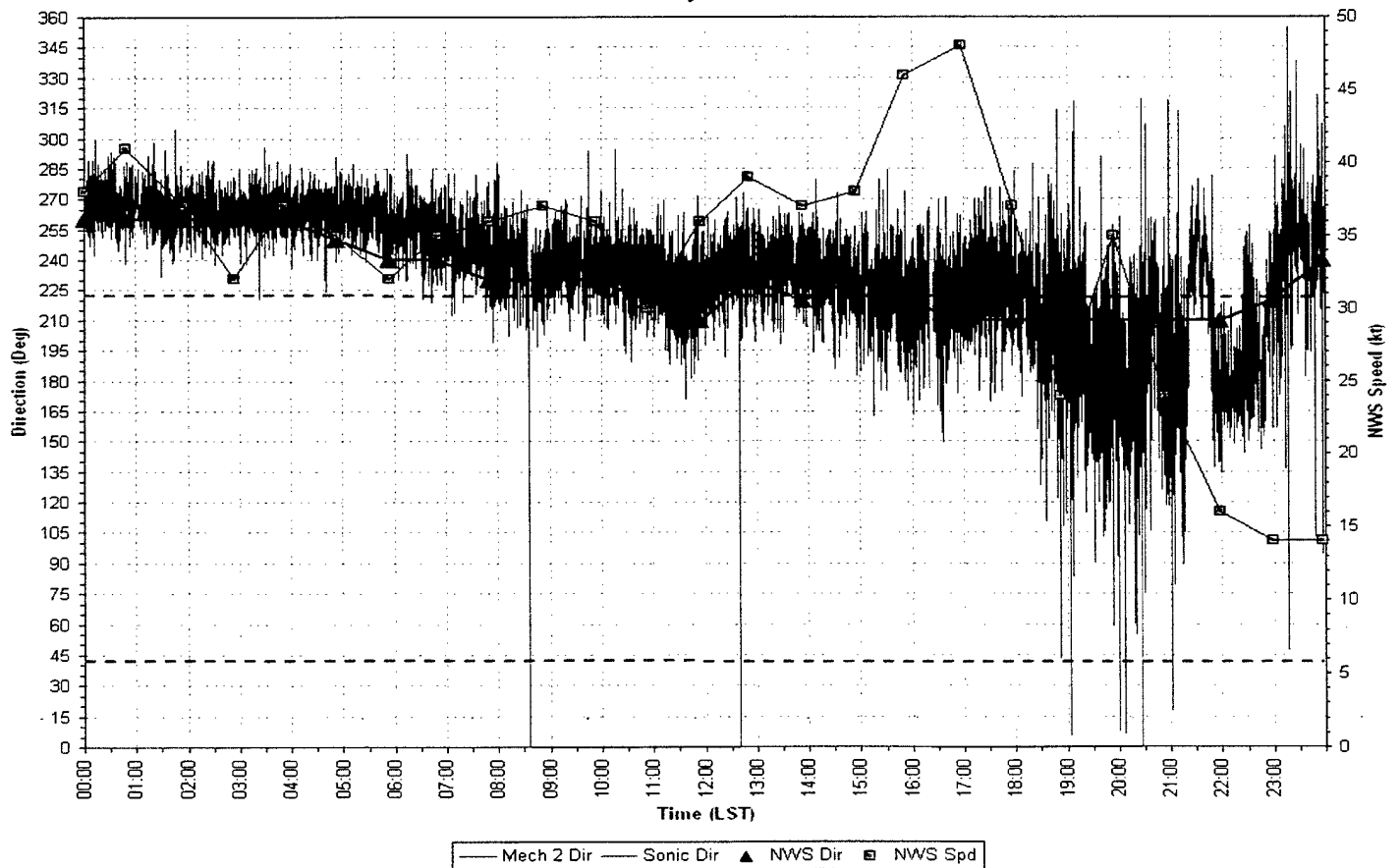


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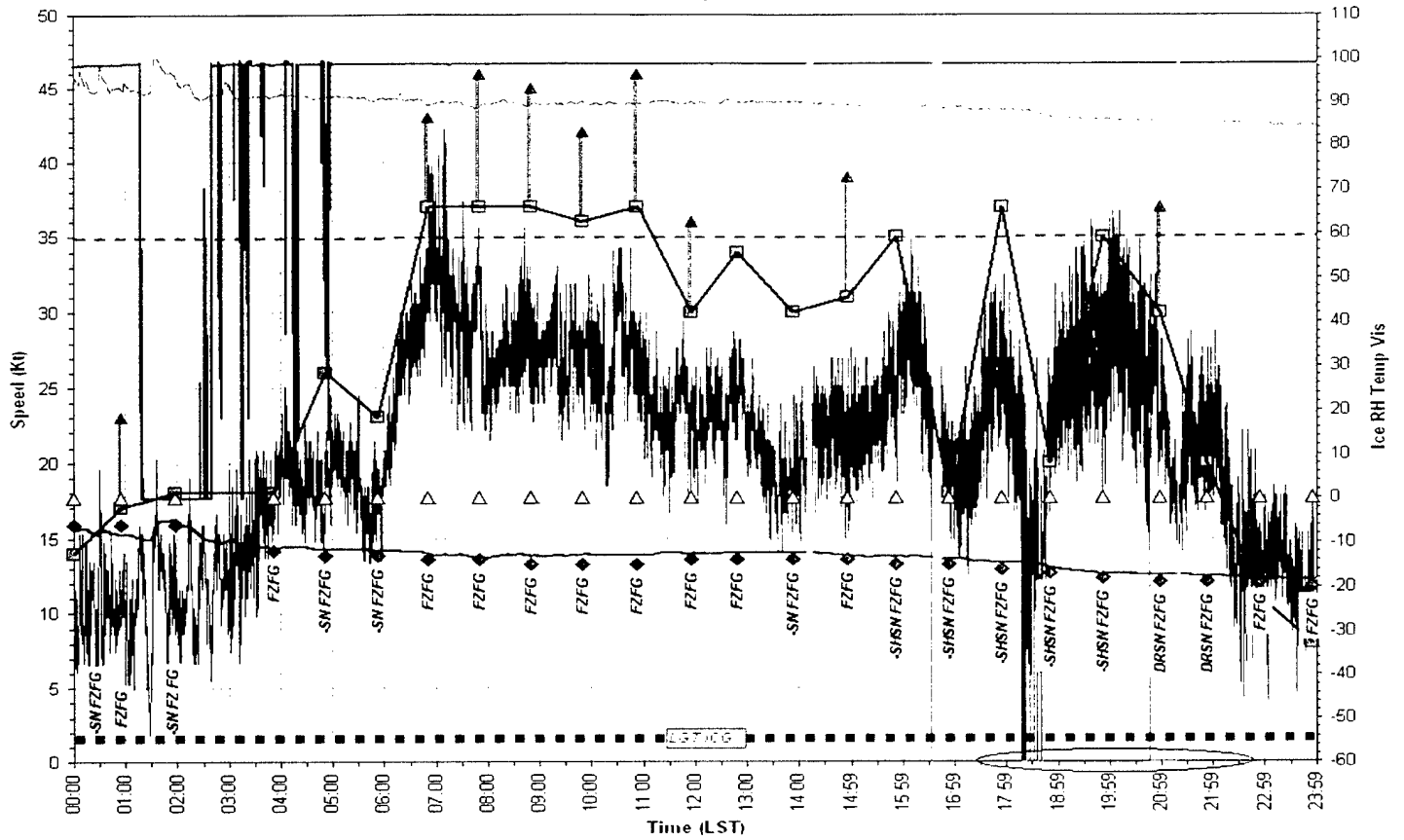
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10-11	17	314	0	283	10	207	10	0	0	0	0	76	0	-12	90
				13	2	8	2					9	1		
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12-13	19	314	0	264	13	188	12	0	0	0	0	76	1	-10	91
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14-15	19	314	0	247	14	171	13	0	0	0	0	77	2	-9	93
	1			32	4	25	4					21	2		
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	1			16	3	13	3					11	1		
16-17	22	314	0	244	20	168	19	0	0	0	0	76	1	-9	93
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17-18	23	314	0	238	27	163	26	0	0	0	0	76	1	-10	92
				9	3	4	3					8	1		
18-19	( 0.1)	62	314	0	239	32	162	30	0	0	0	76	2	-9	93
	30			10	3	7	3					7	1		
19-20	( 11.0)	98	320	0	235	34	159	31	0	0	0	76	3	-9	93
		17		11	3	5	3					9	2		
20-21	213 ( 79.9)	98	357	0	233	41	153	35	0	0	0	81	6	-9	93
		17		13	3	7	7					12	6		
21-22	117 ( 88.3)	98	354	0	232	37	157	31	0	0	0	79	8	-10	92
		13		21	4	26	8					28	7		
22-23	39 ( 97.9)	98	355	0	225	36	150	40	0	0	0	73	-3	-11	92
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23-24	4 ( 99.9)	99	343	0	219	39	224	11	0	0	0	-11	30	-10	93
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APPENDIX C  
DATA PLOTS

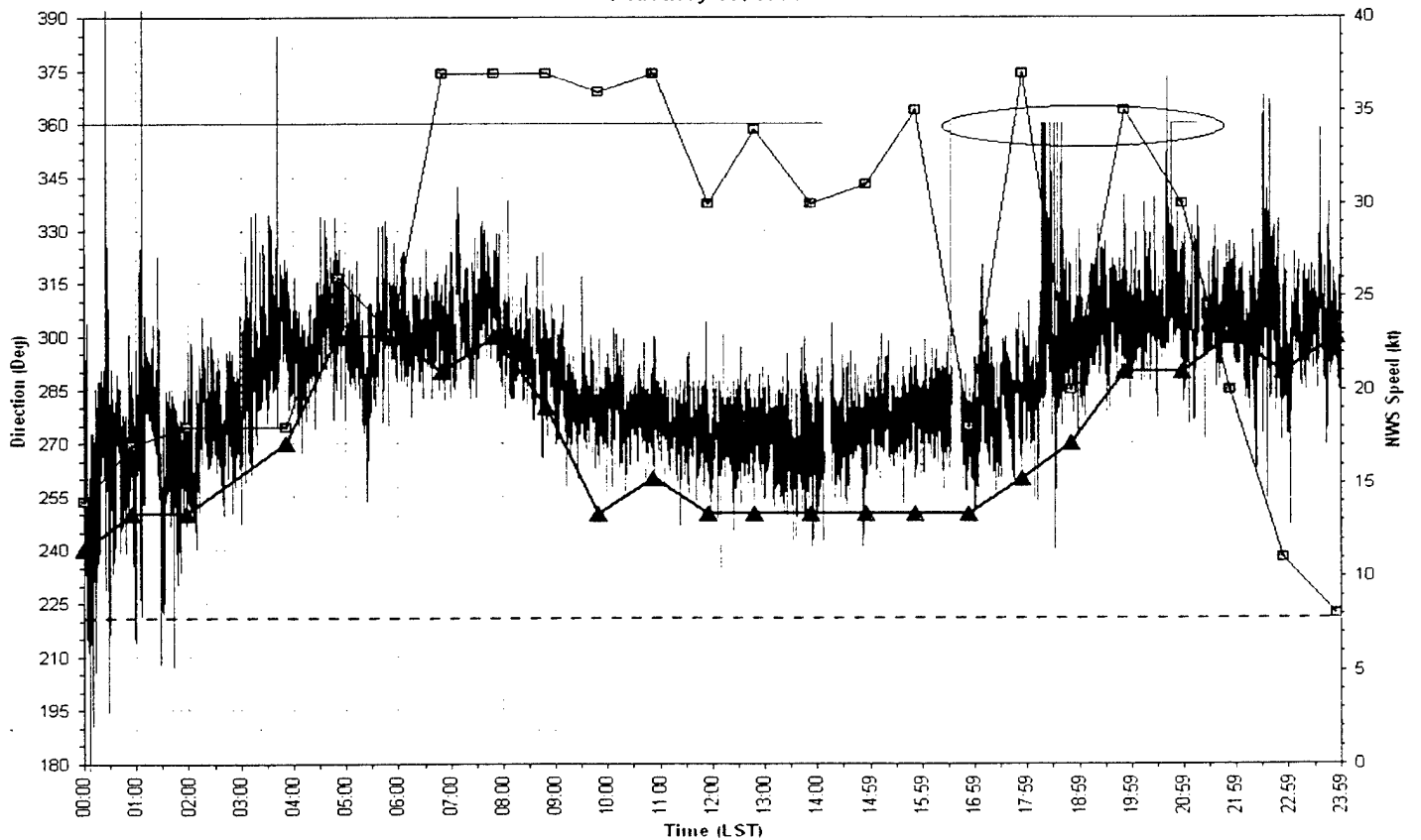
February 12, 1999



February 13, 1999

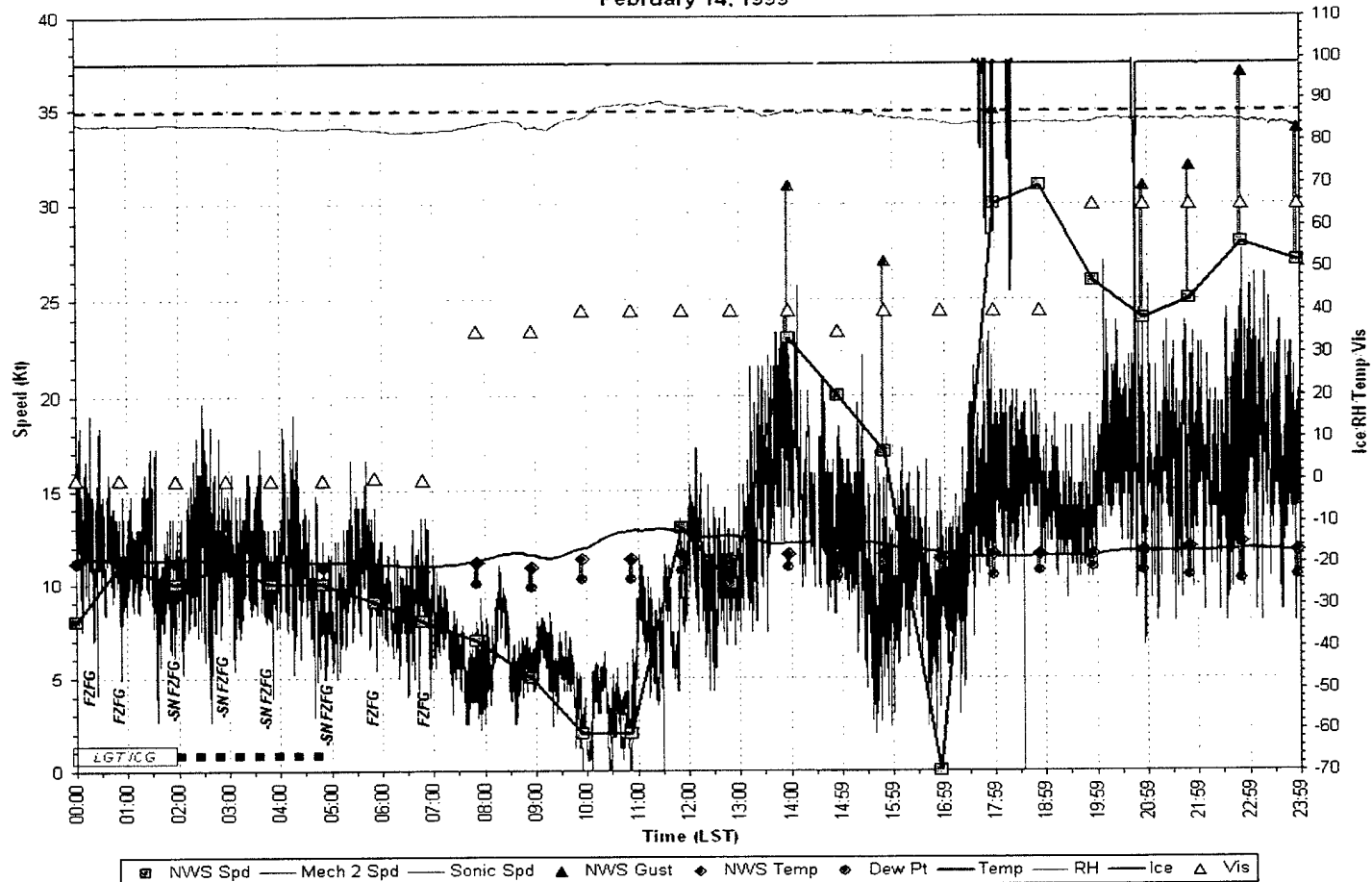


February 13, 1999

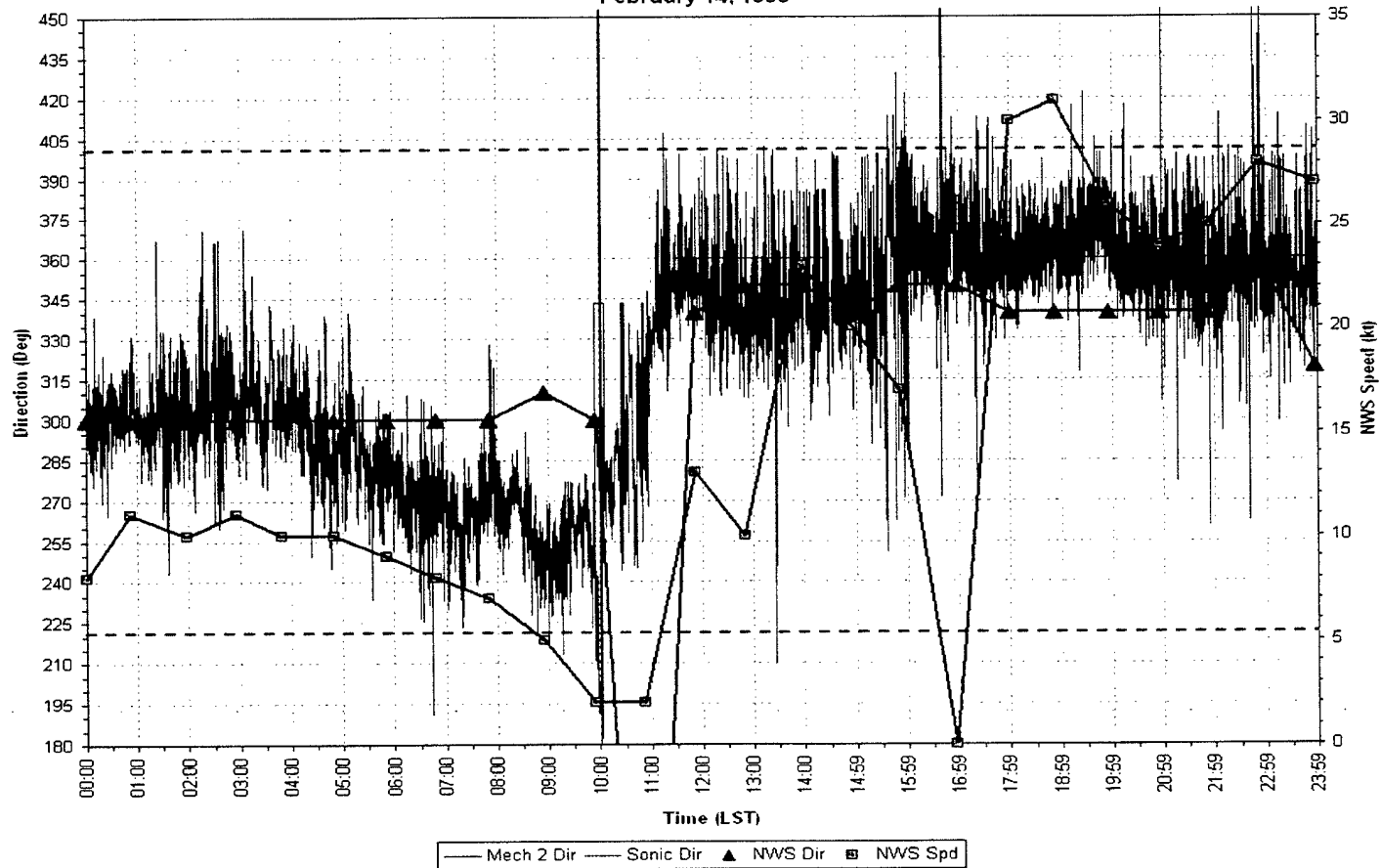




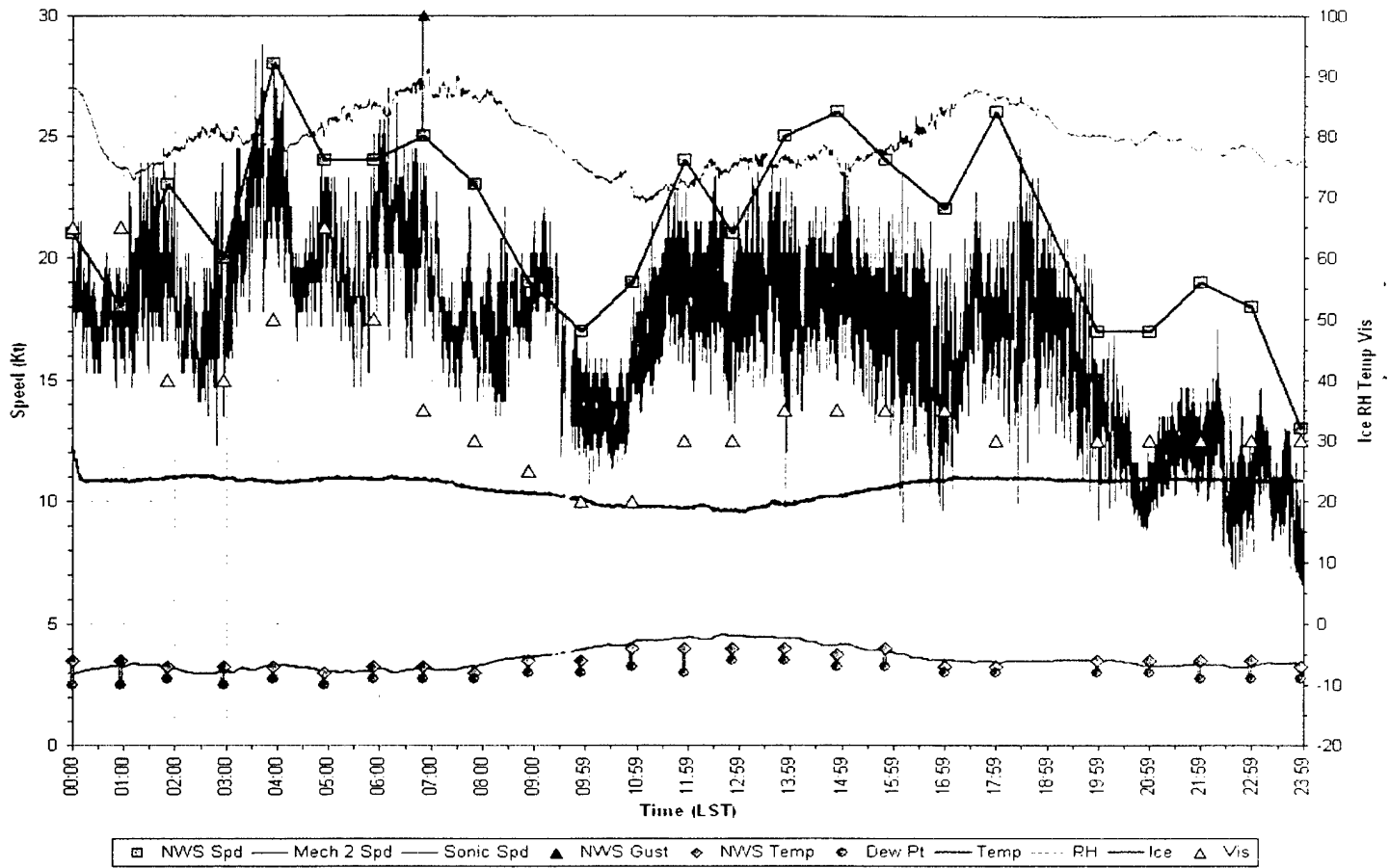
February 14, 1999



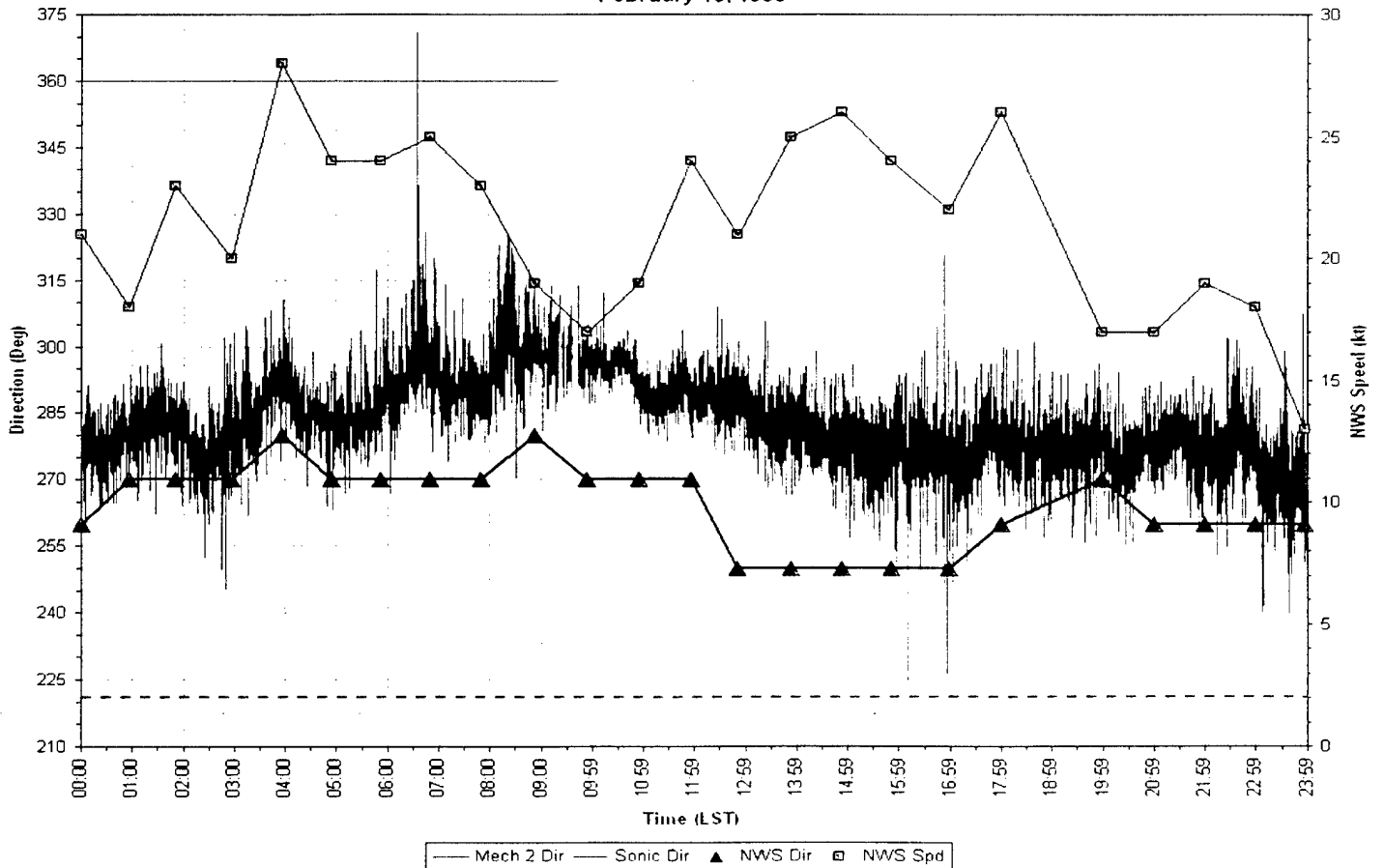
February 14, 1999



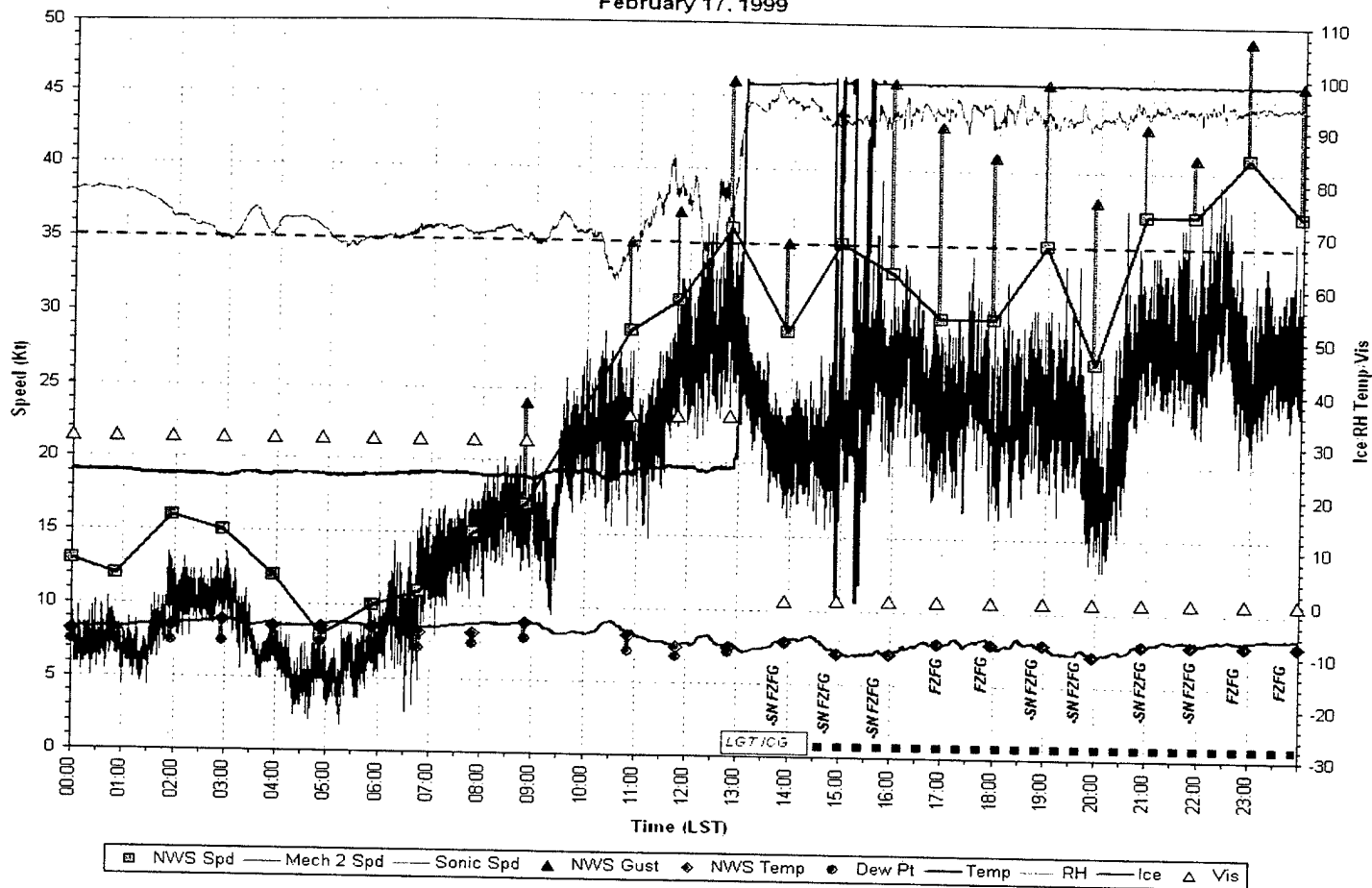
February 16, 1999



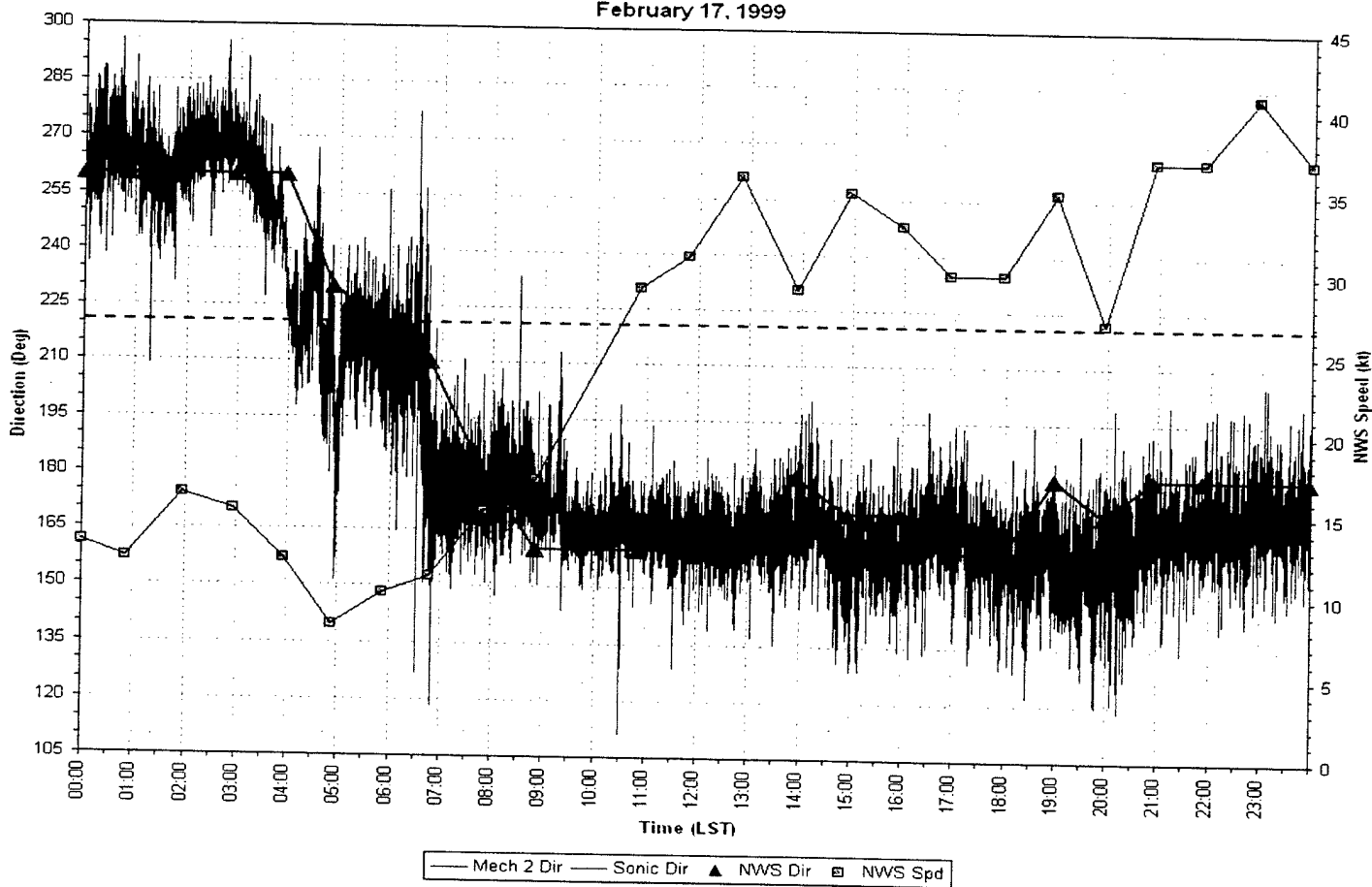
February 16, 1999



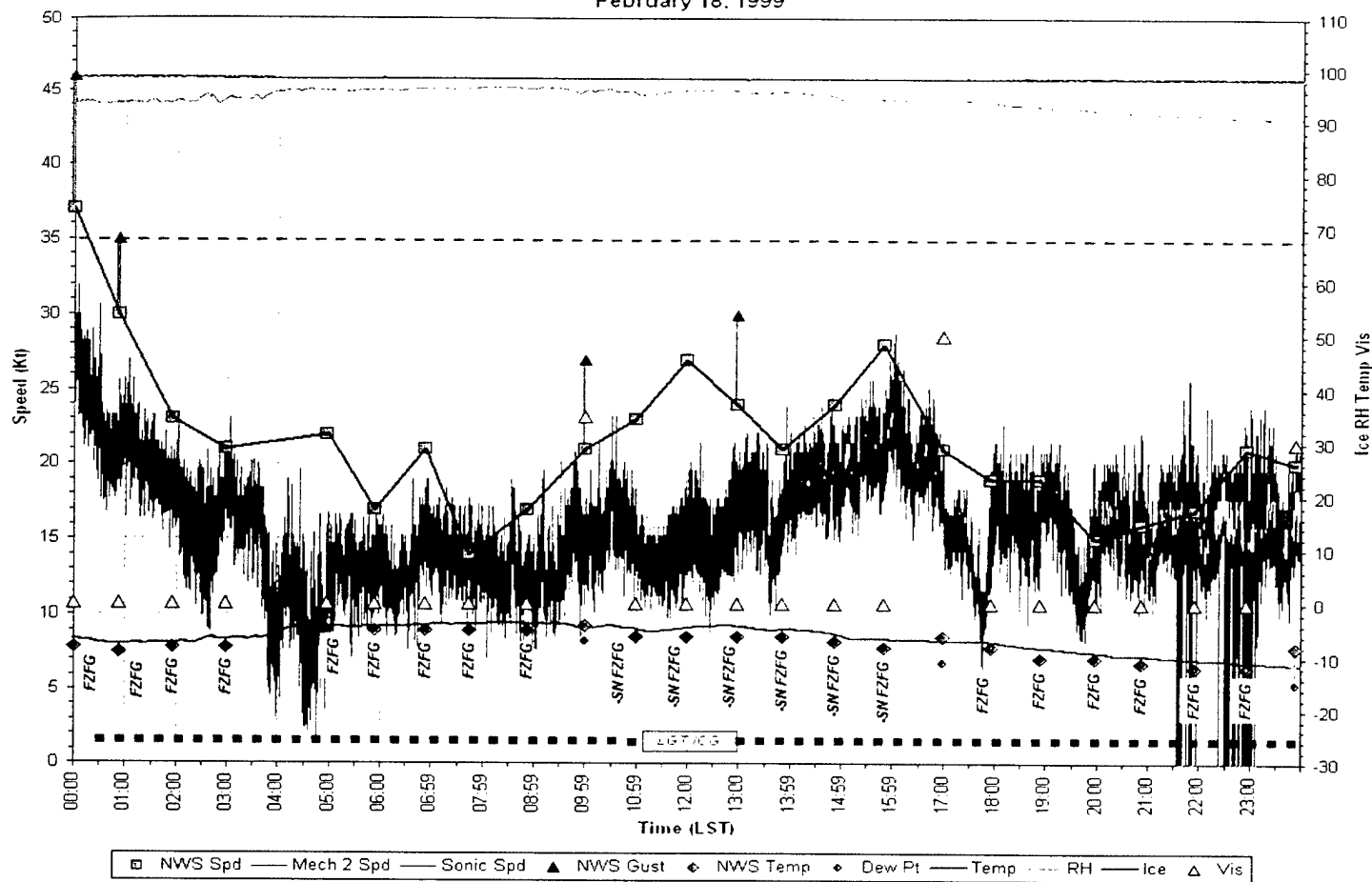
February 17, 1999



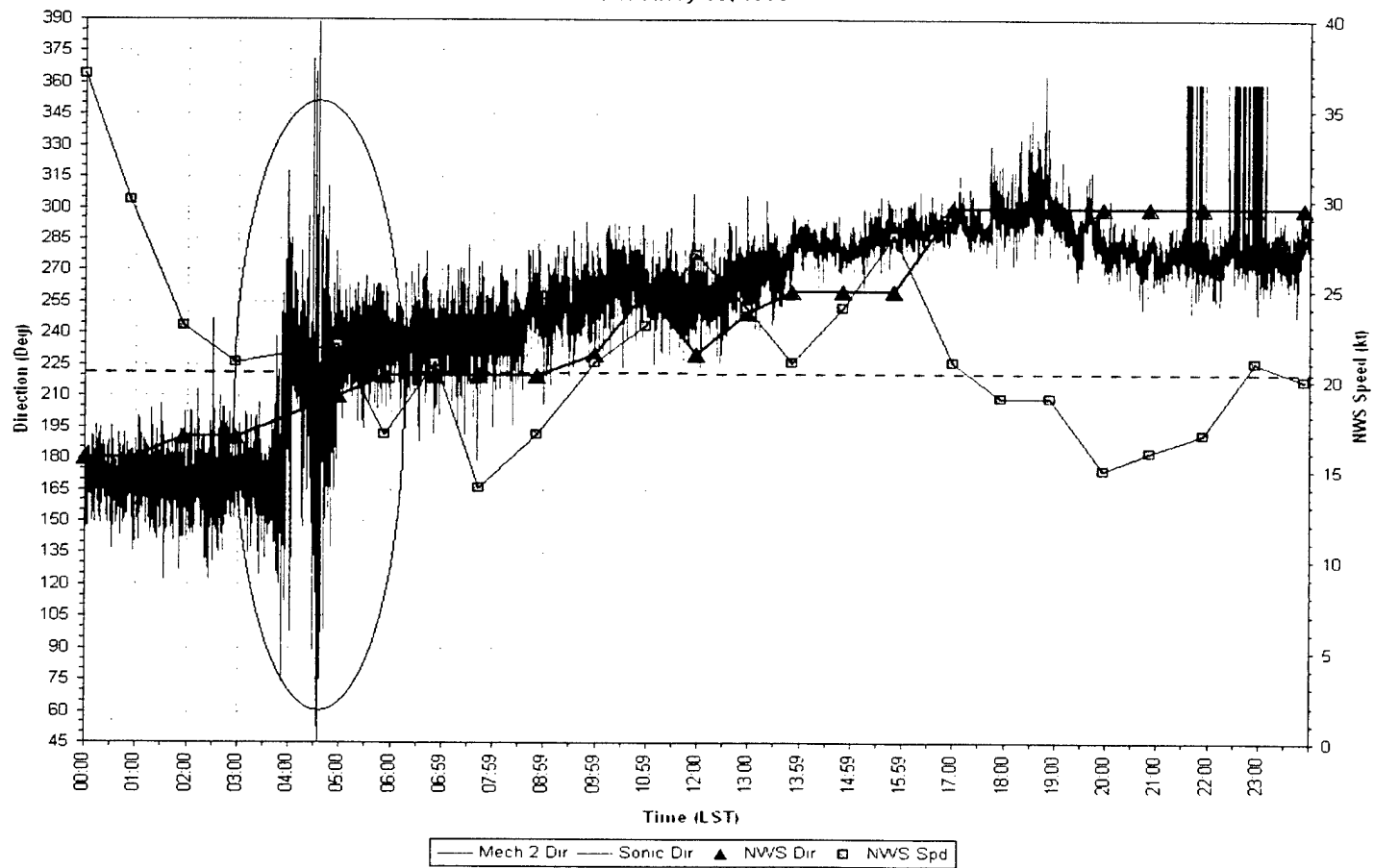
February 17, 1999



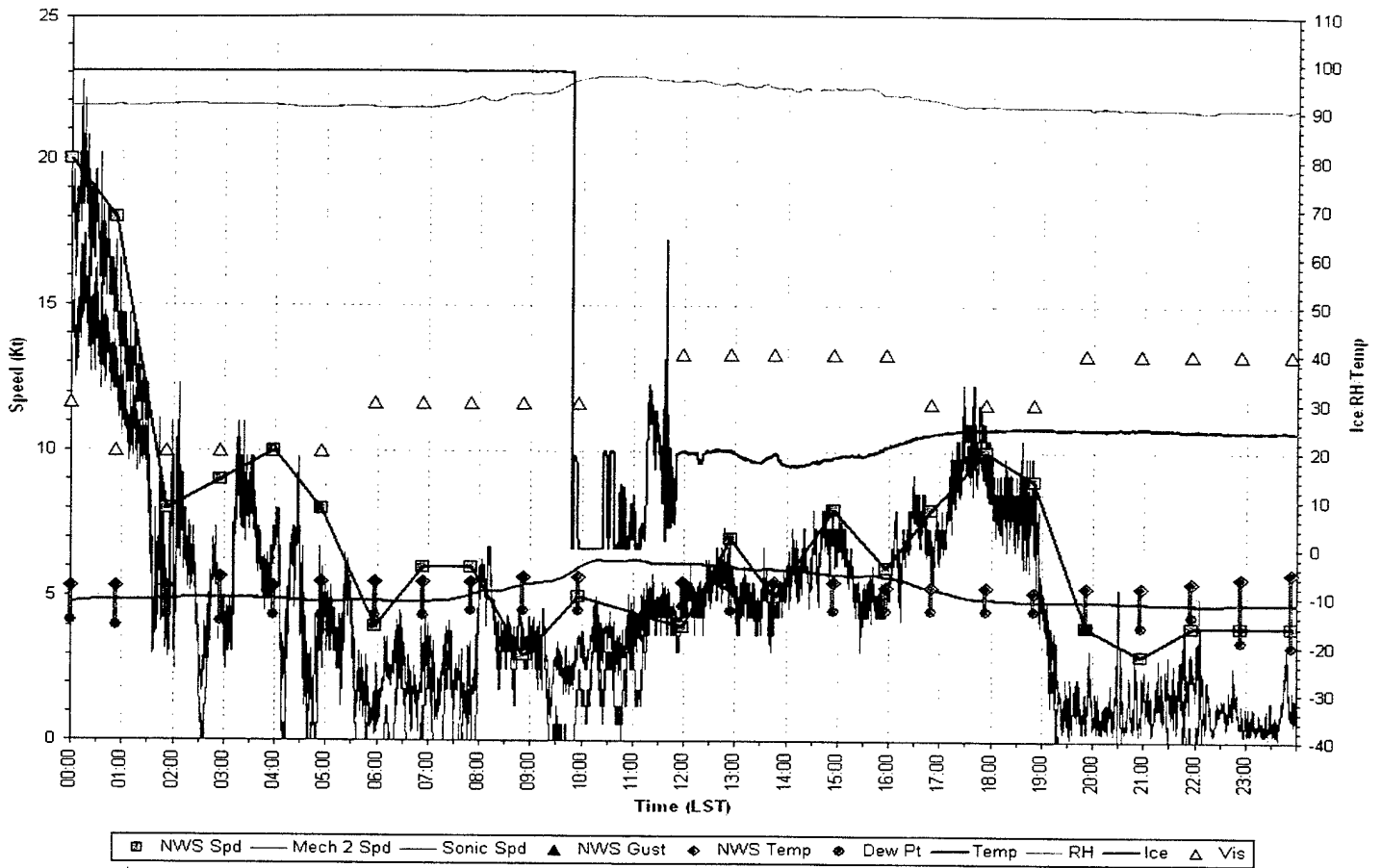
February 18, 1999



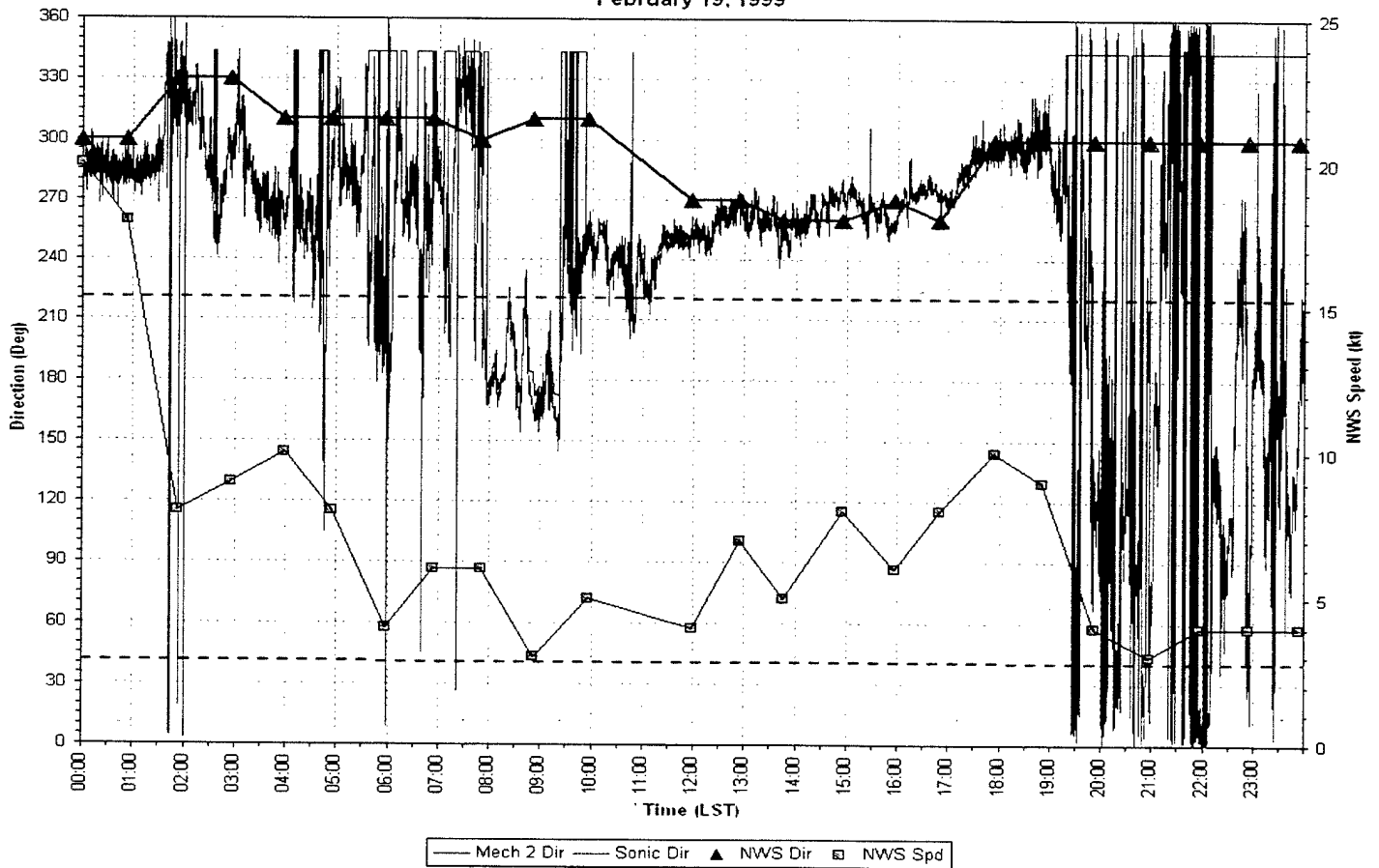
February 18, 1999



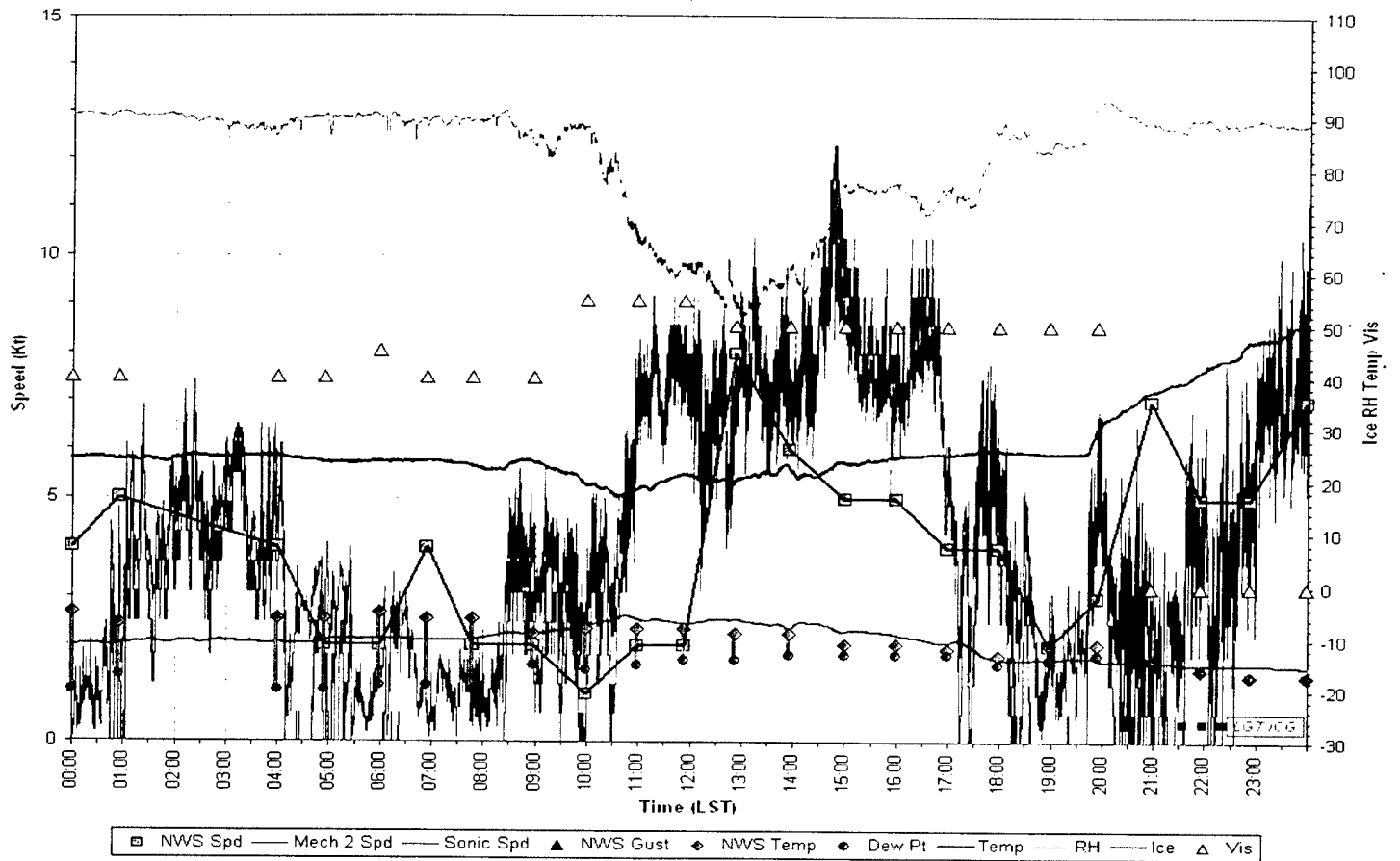
February 19, 1999



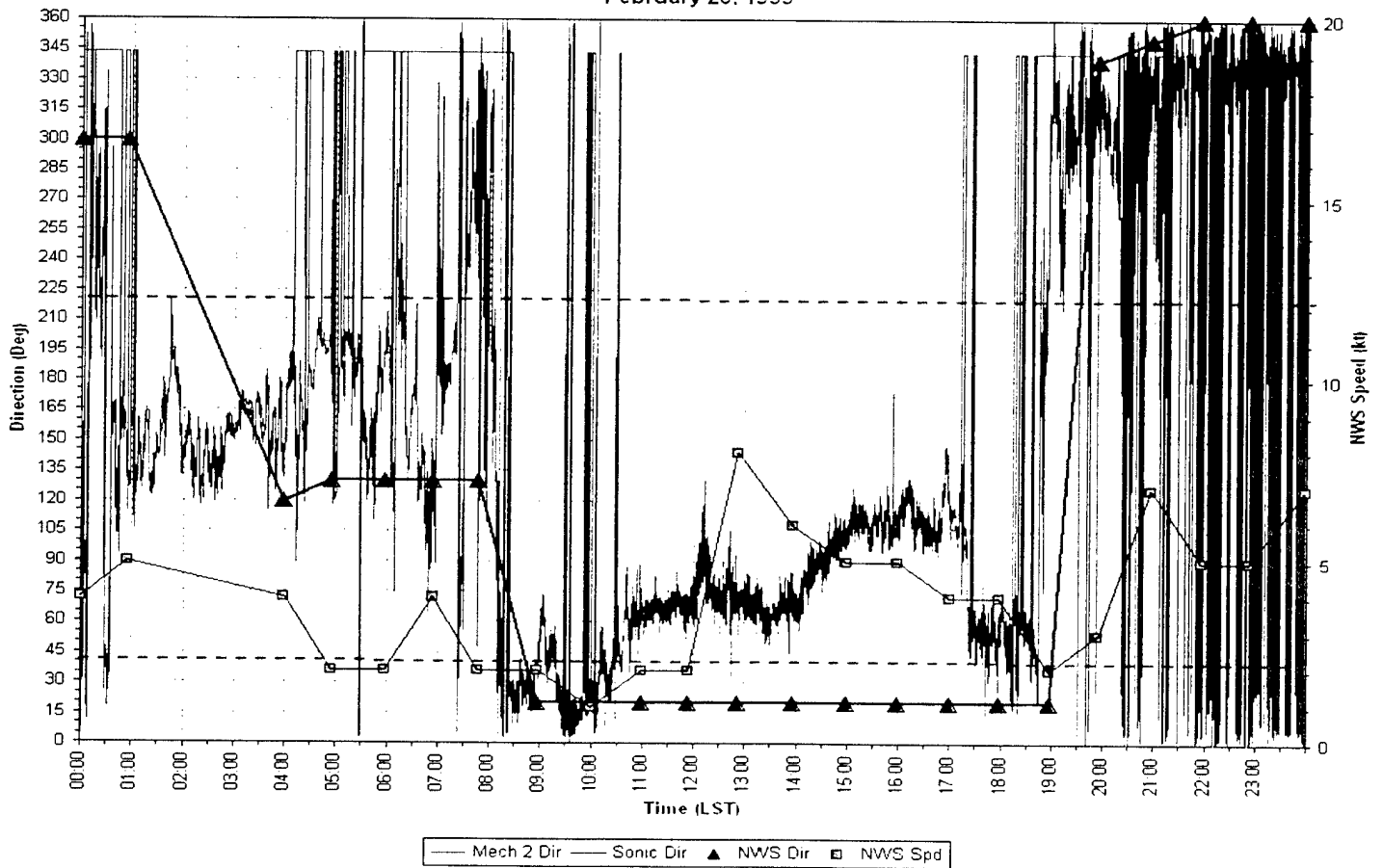
February 19, 1999



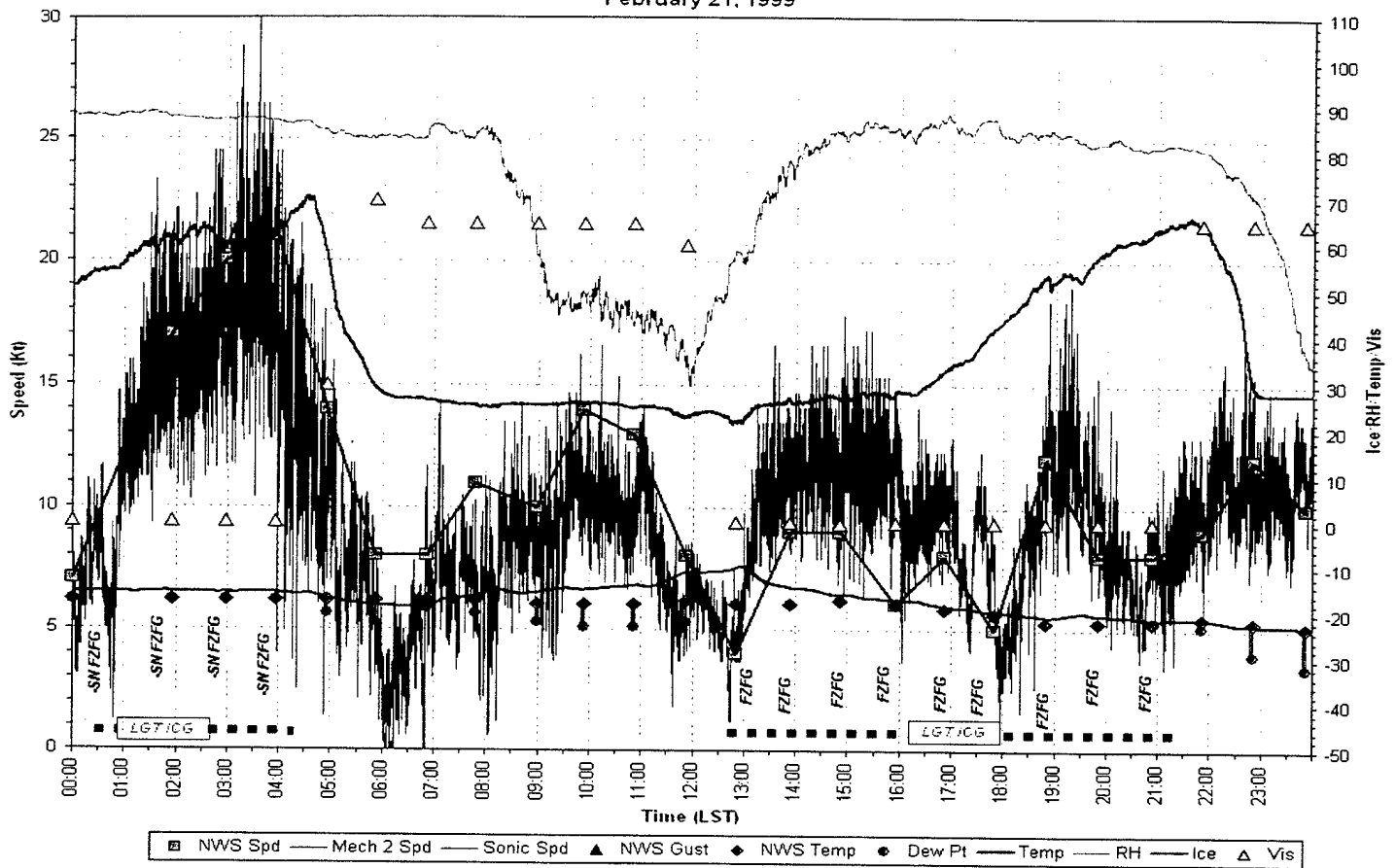
February 20, 1999



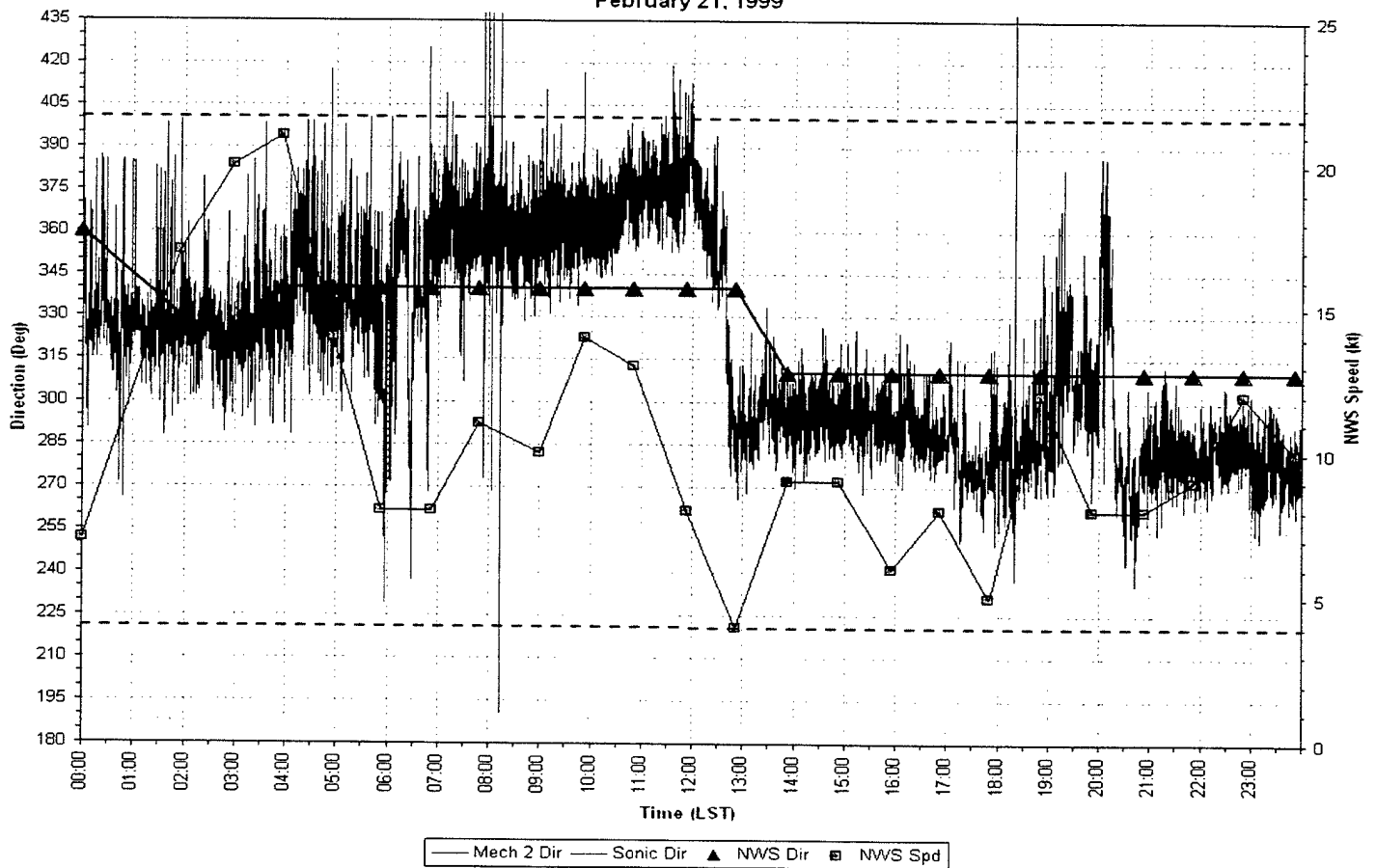
February 20, 1999



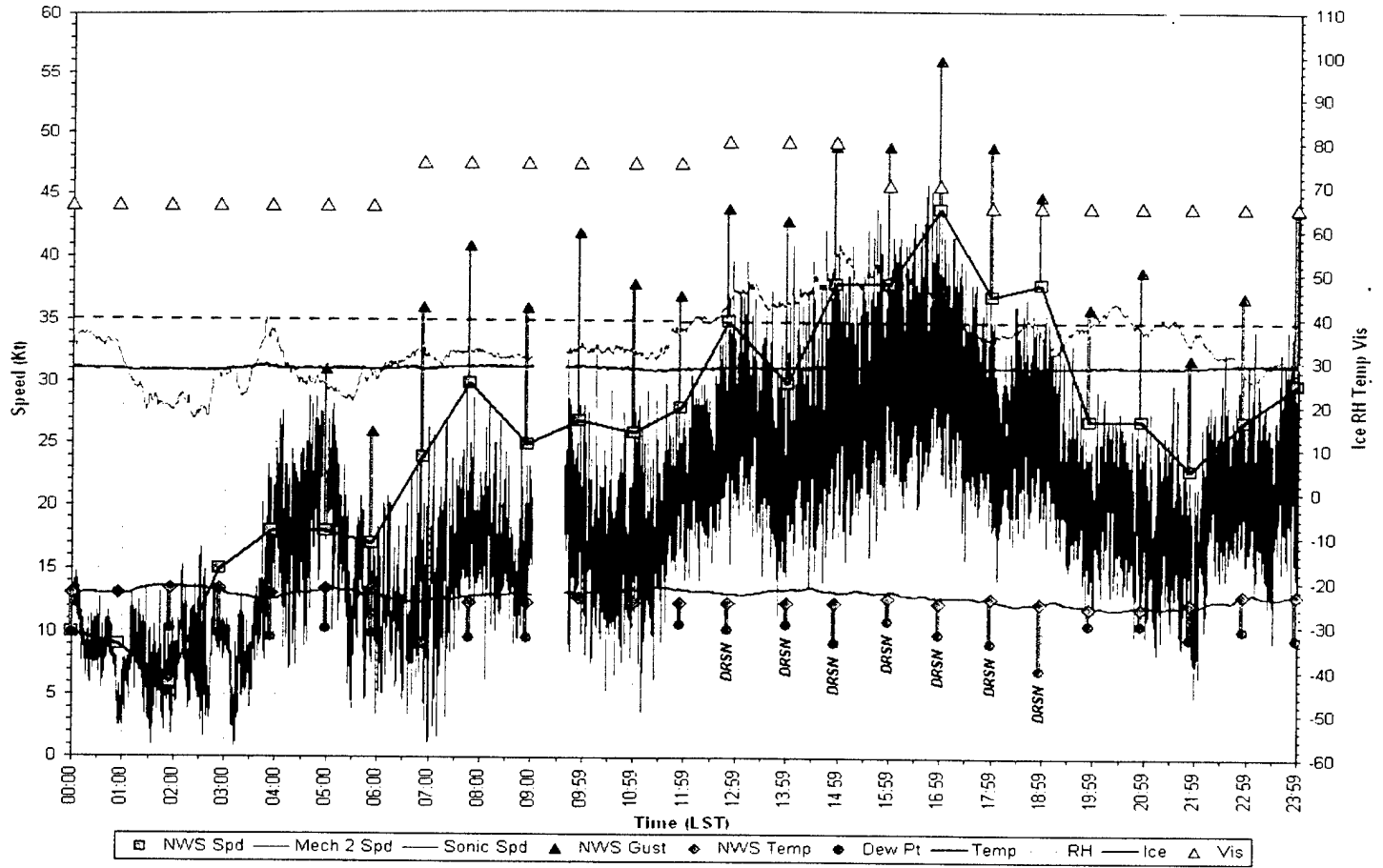
February 21, 1999



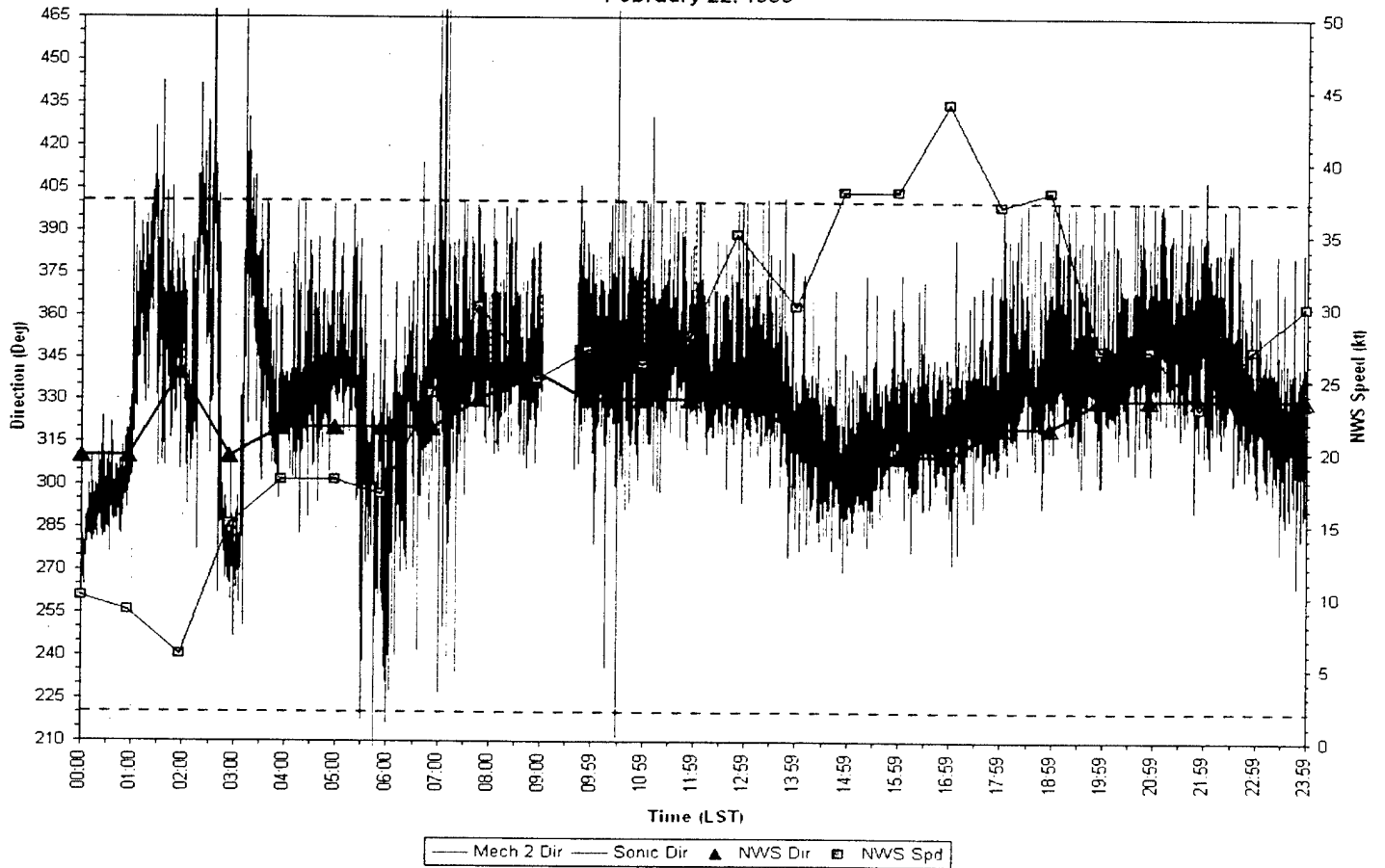
February 21, 1999



February 22, 1999

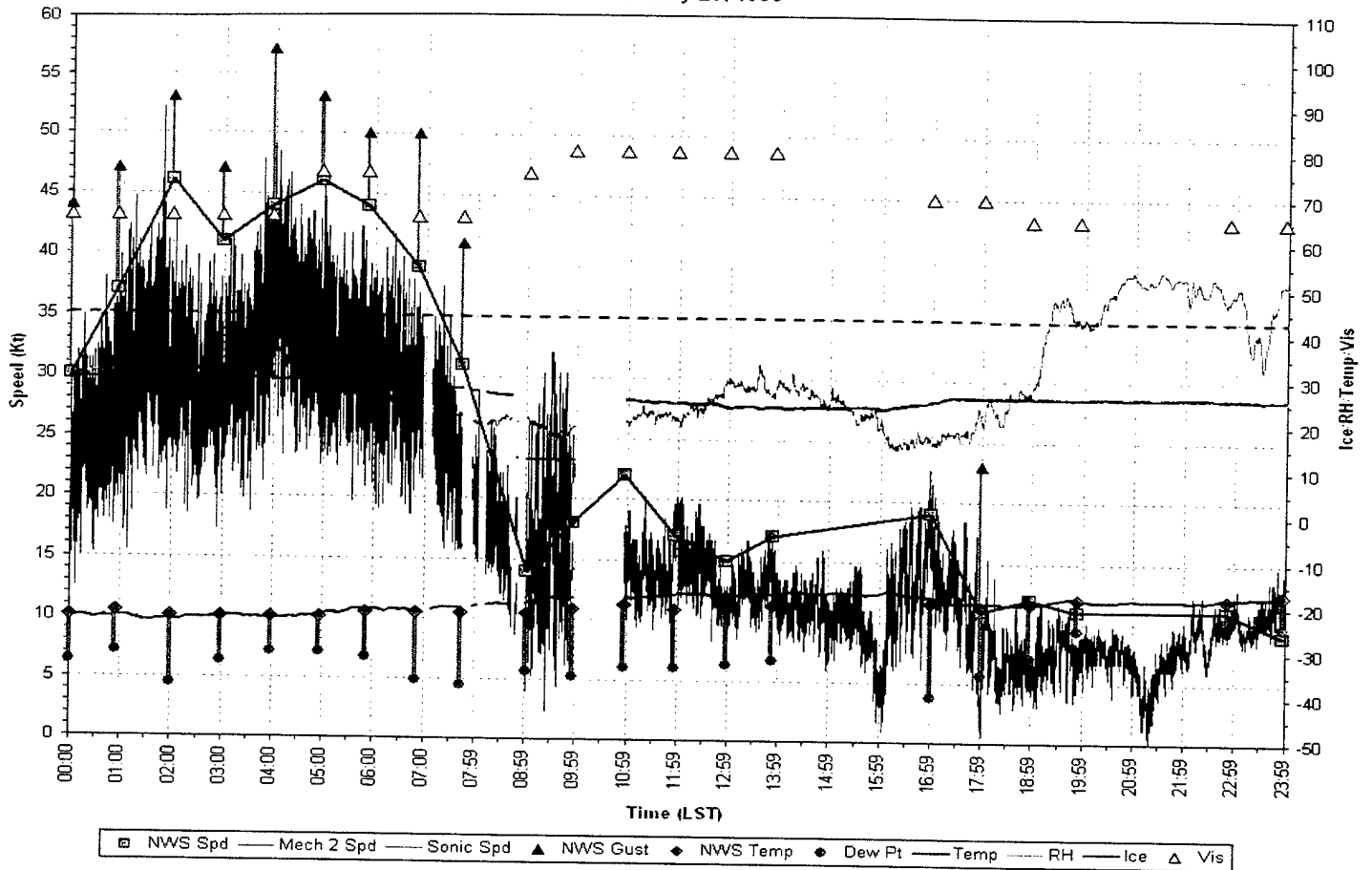


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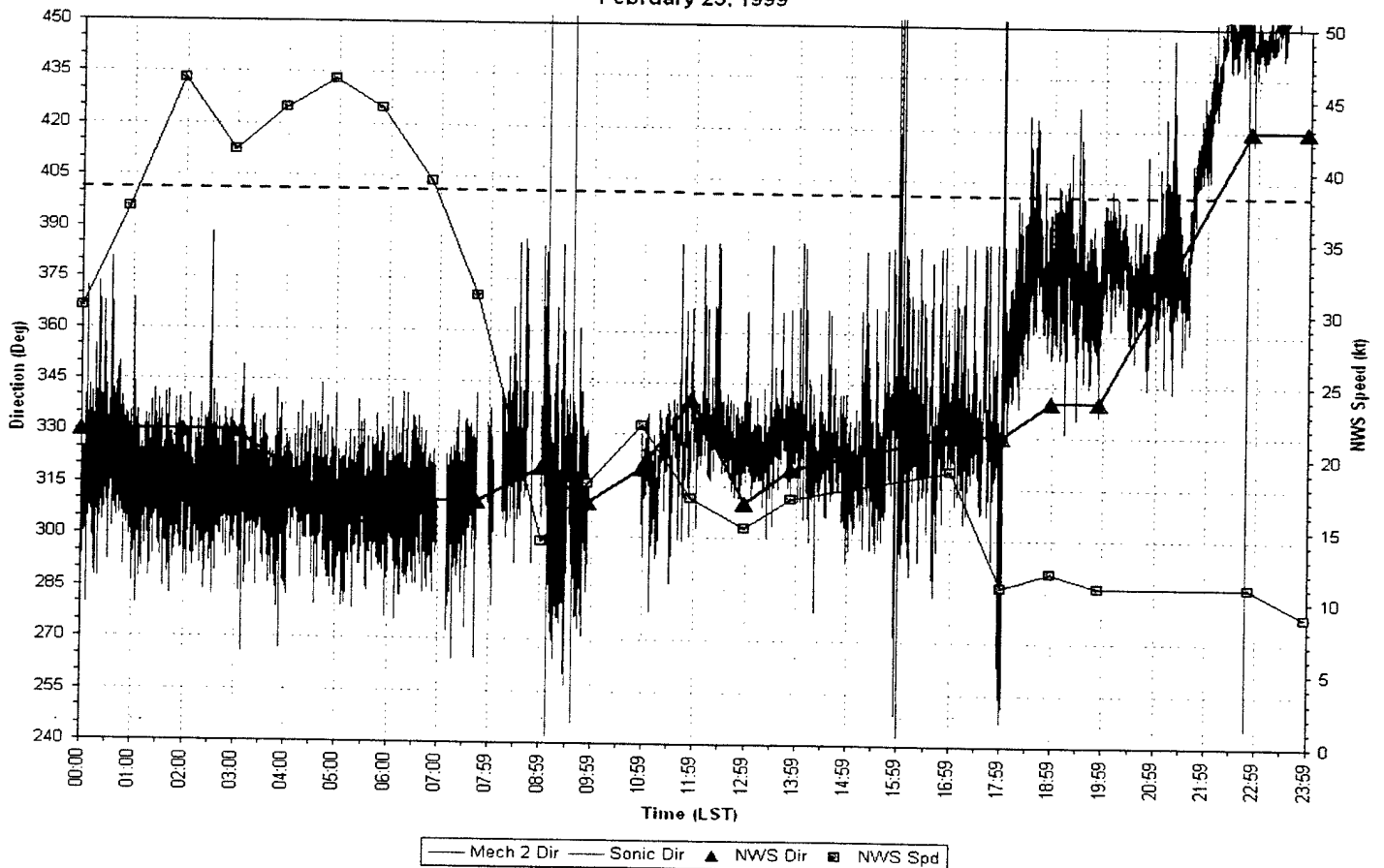




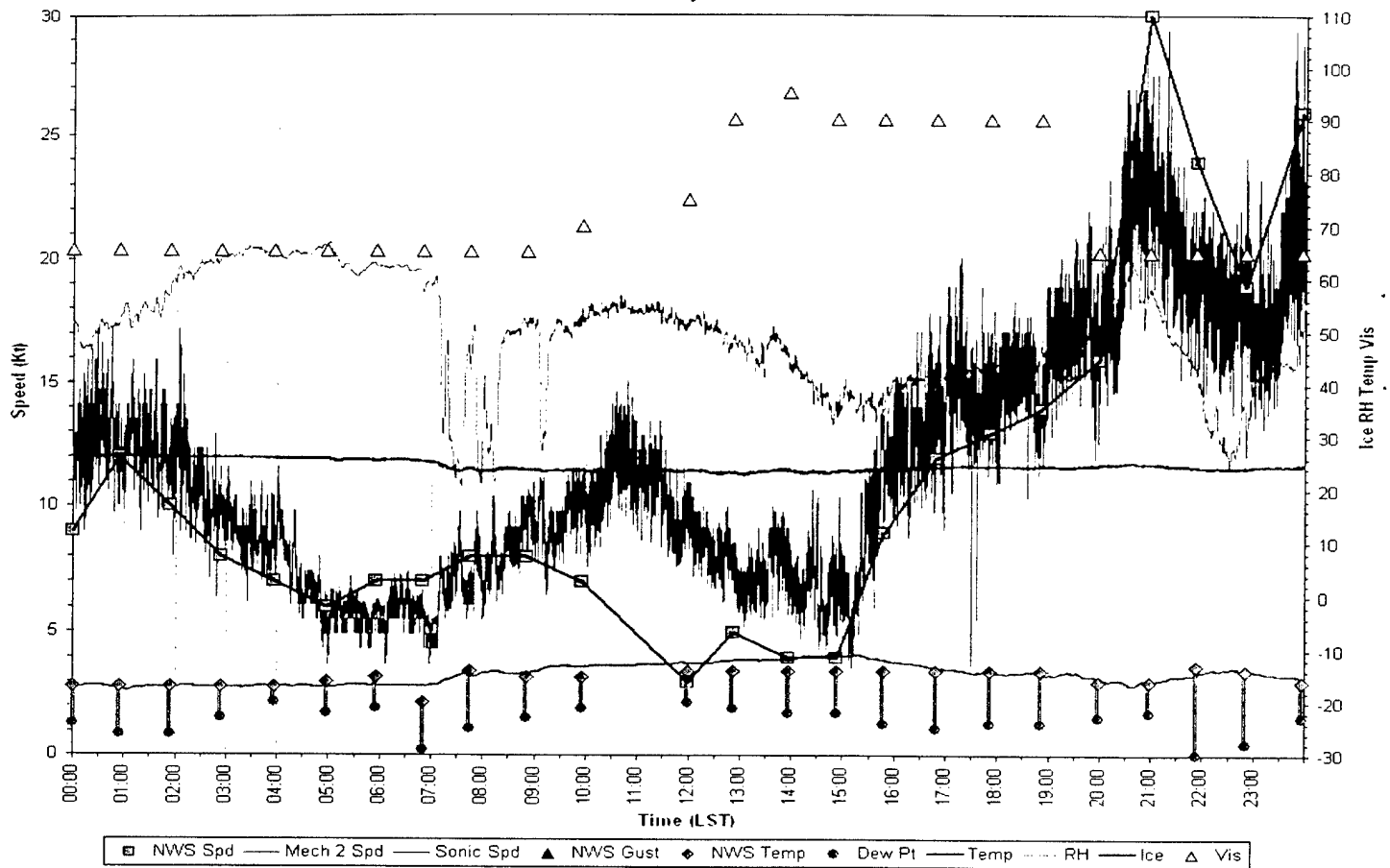
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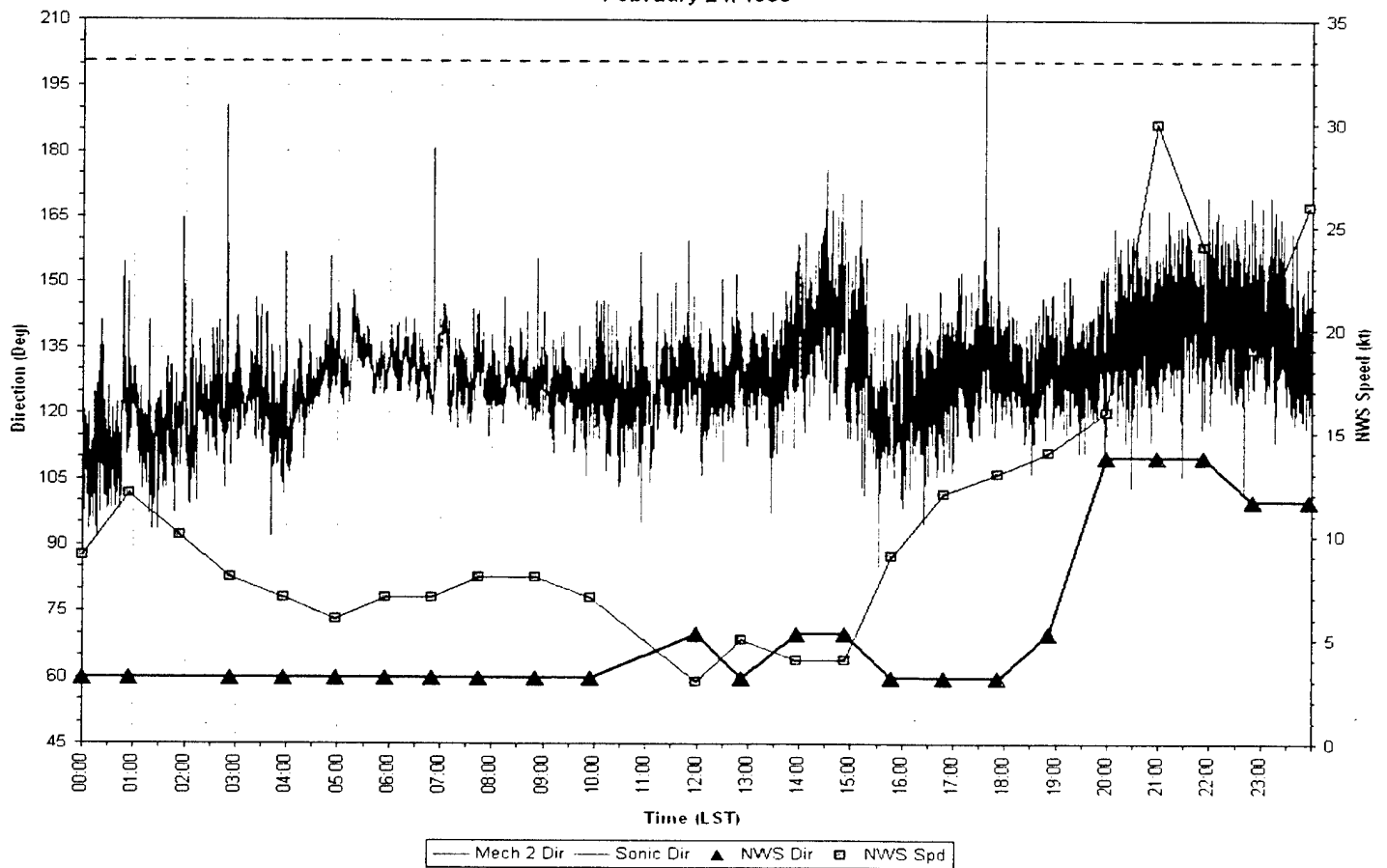
February 23, 1999



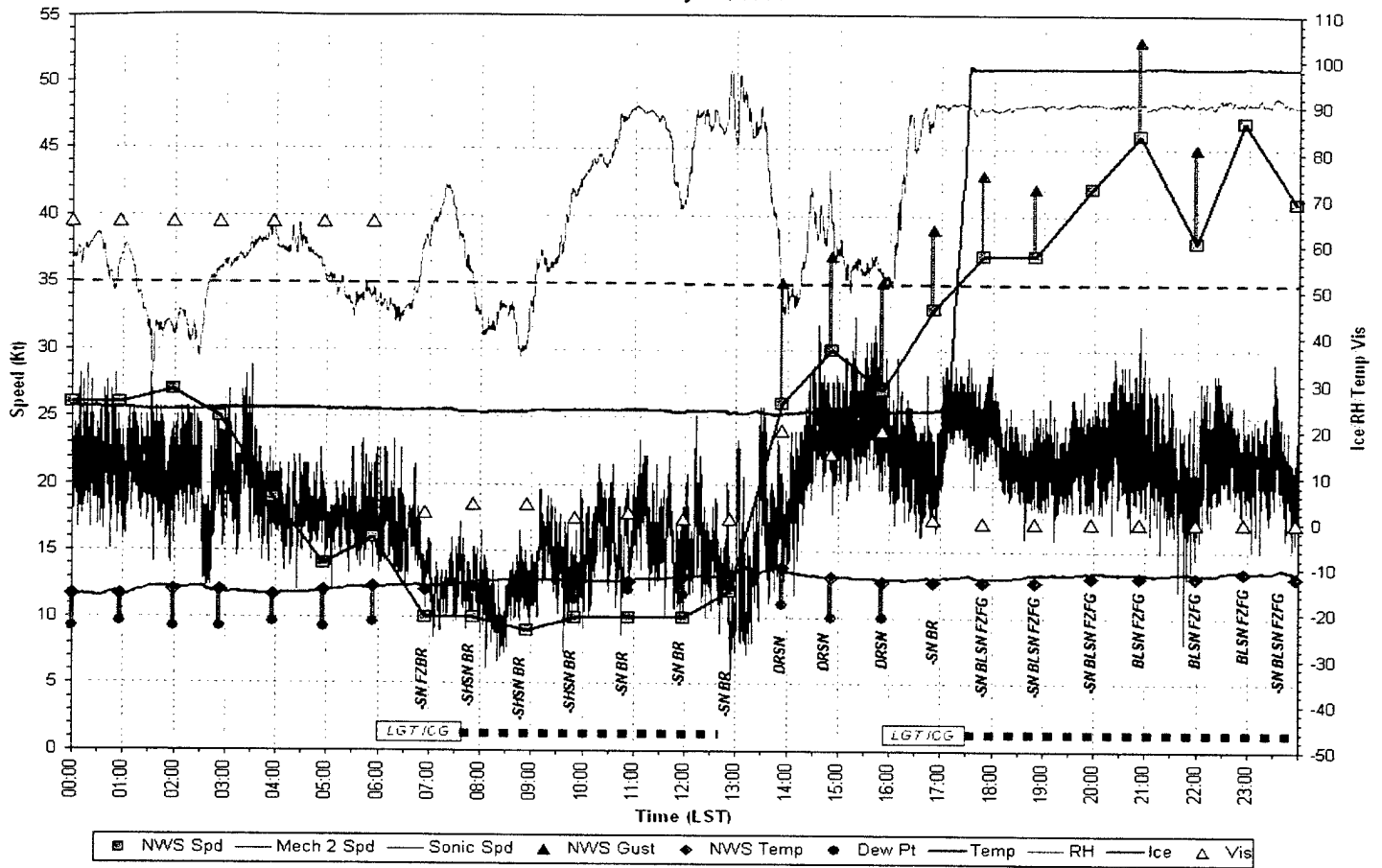
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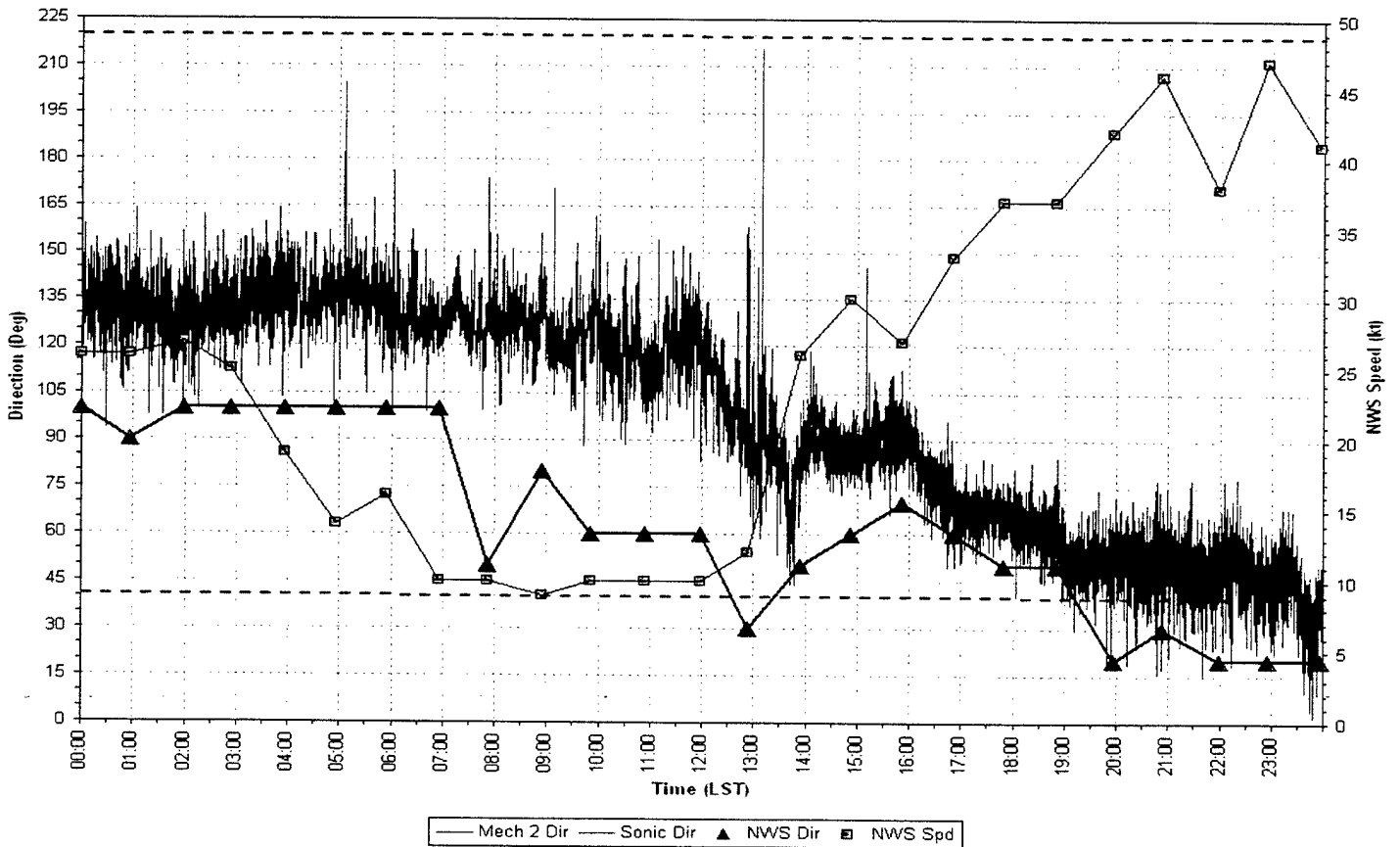
February 24, 1999



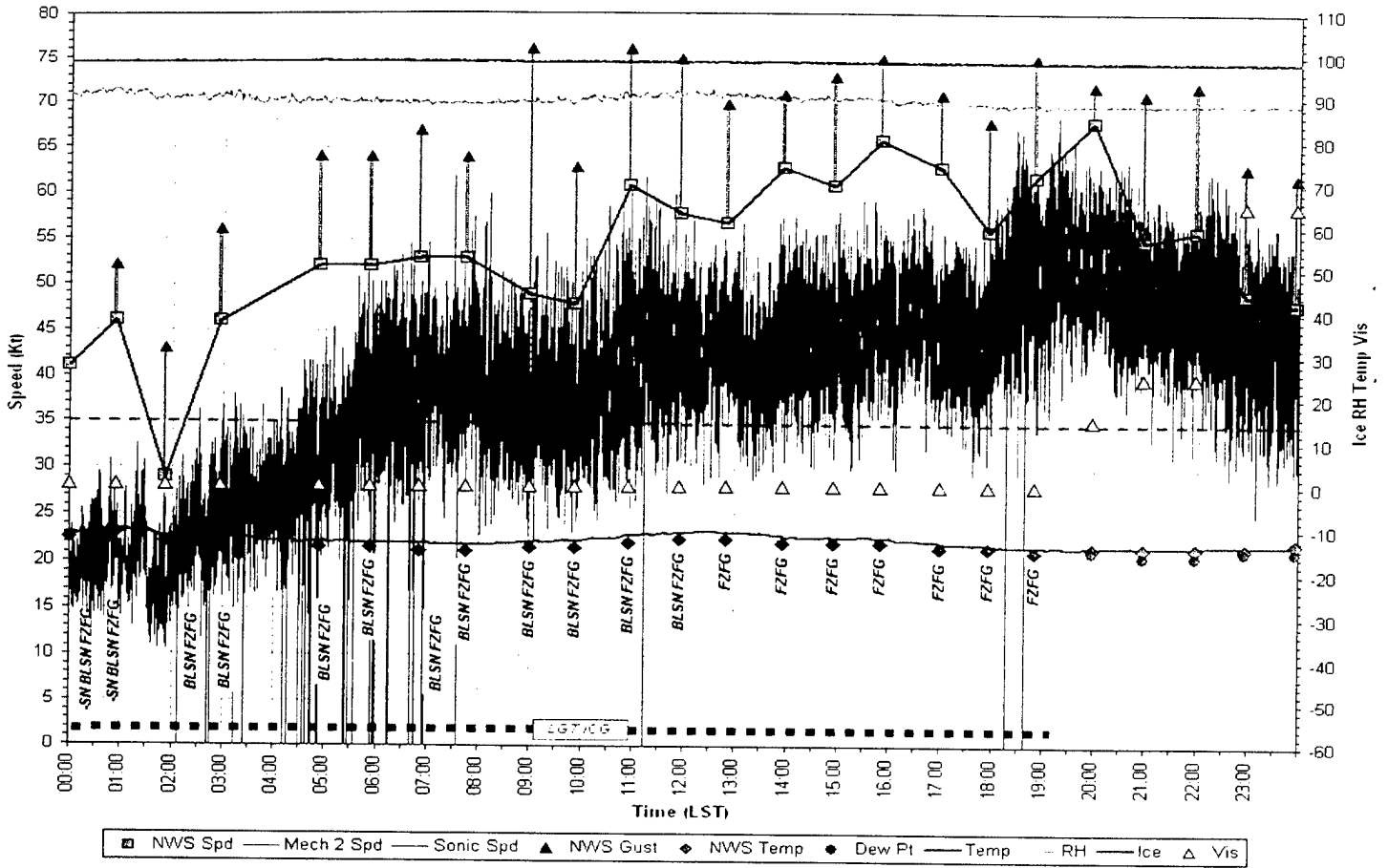
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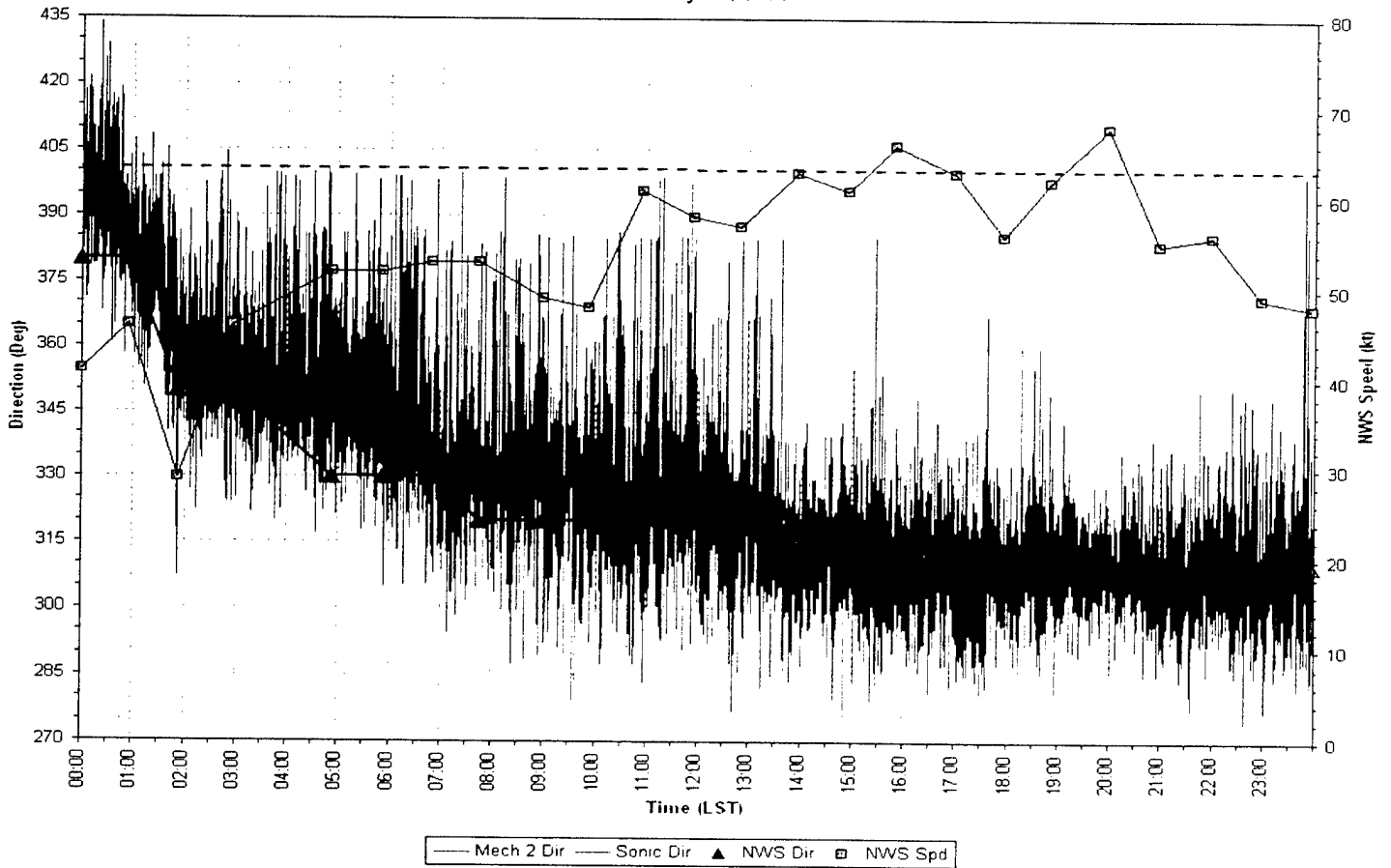
February 25, 1999



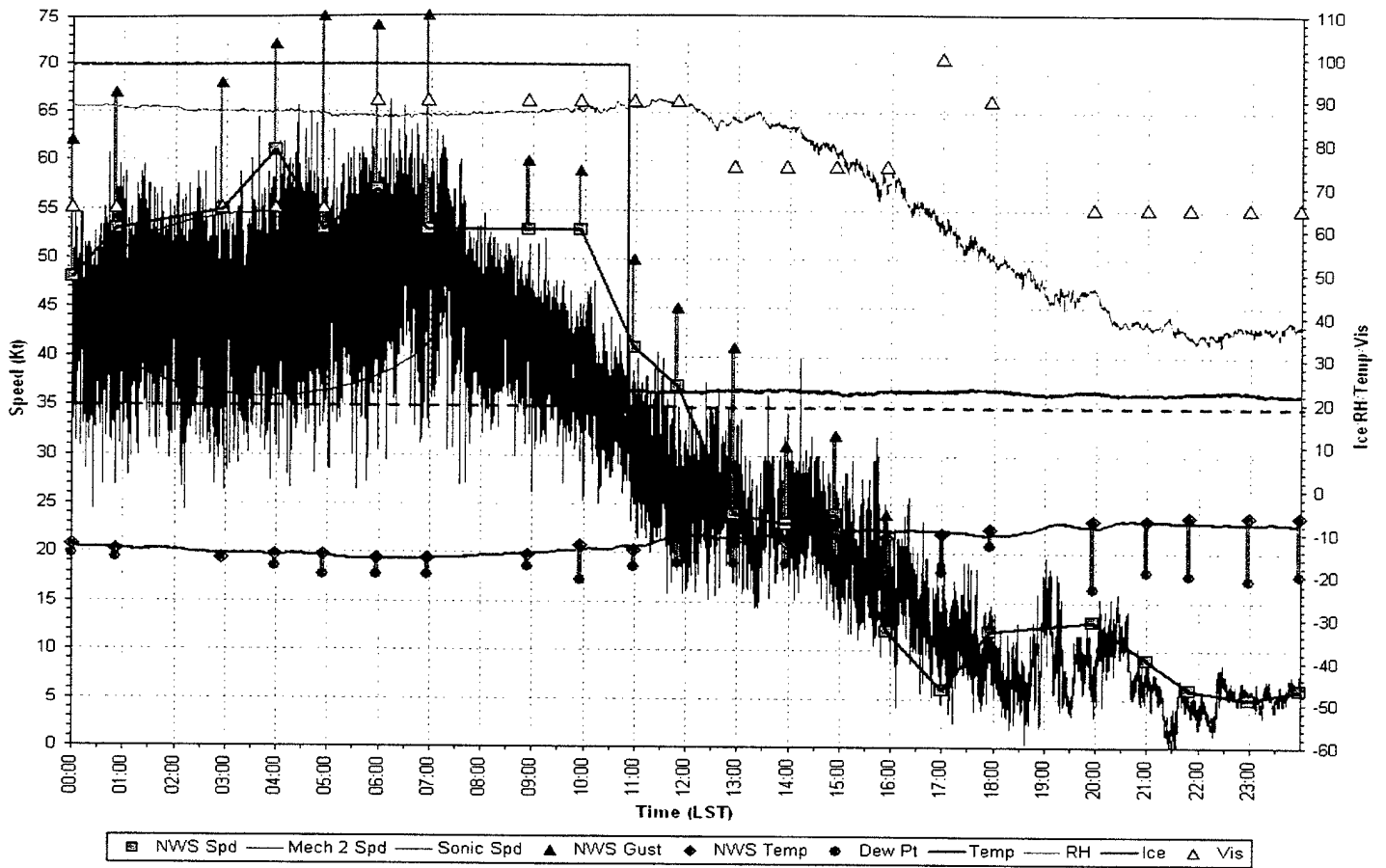
February 26, 1999



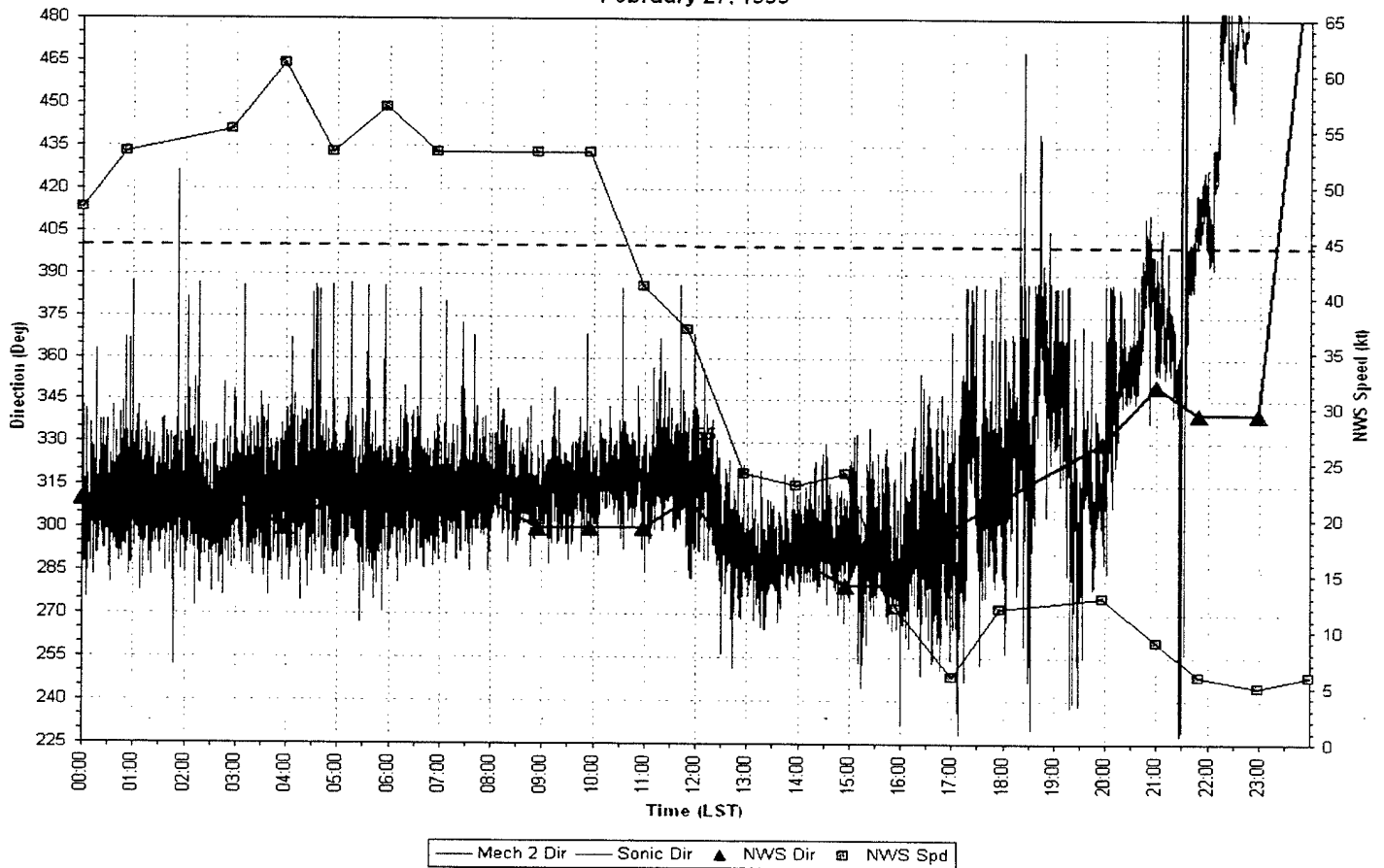
February 26, 1999



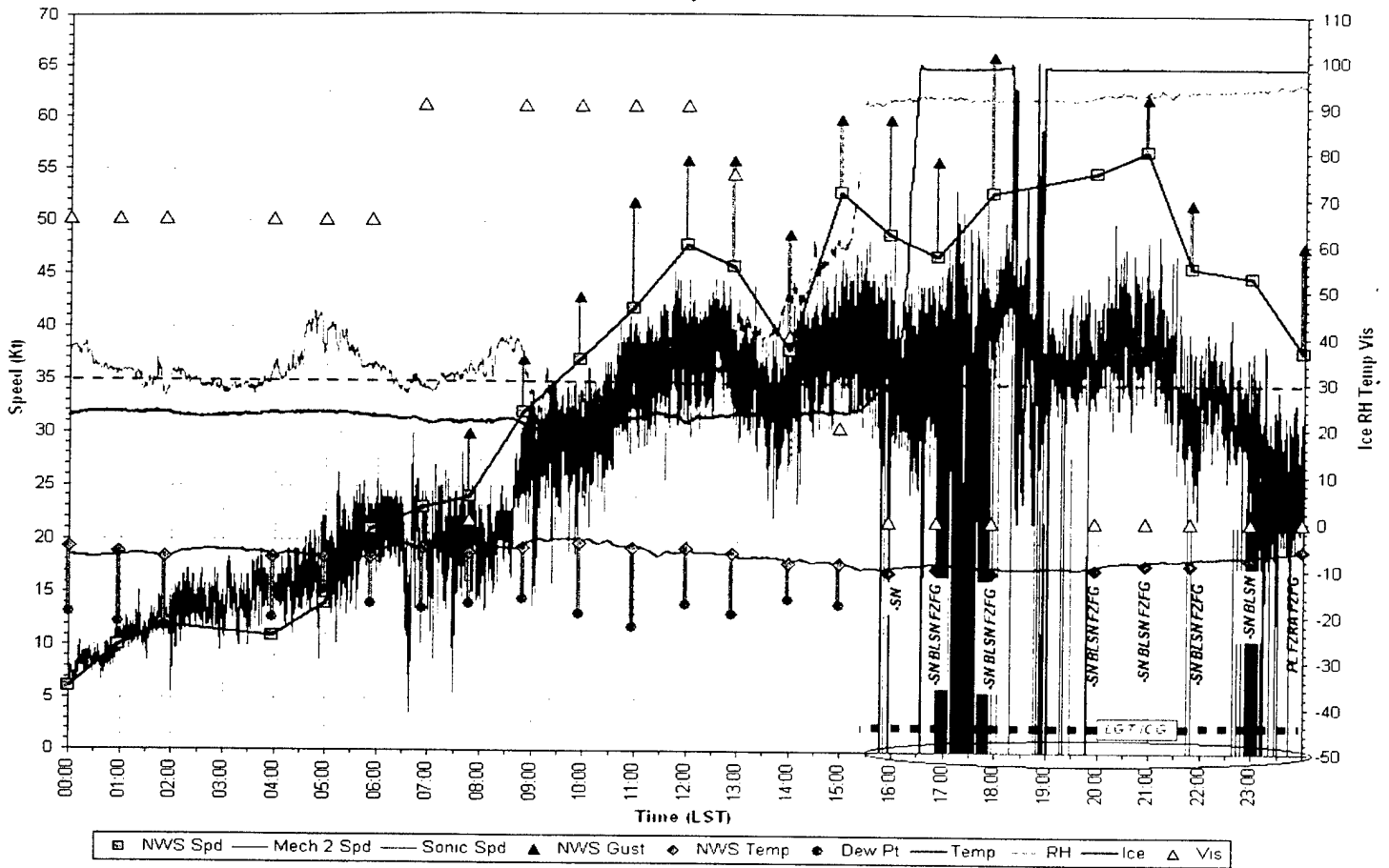
February 27, 1999



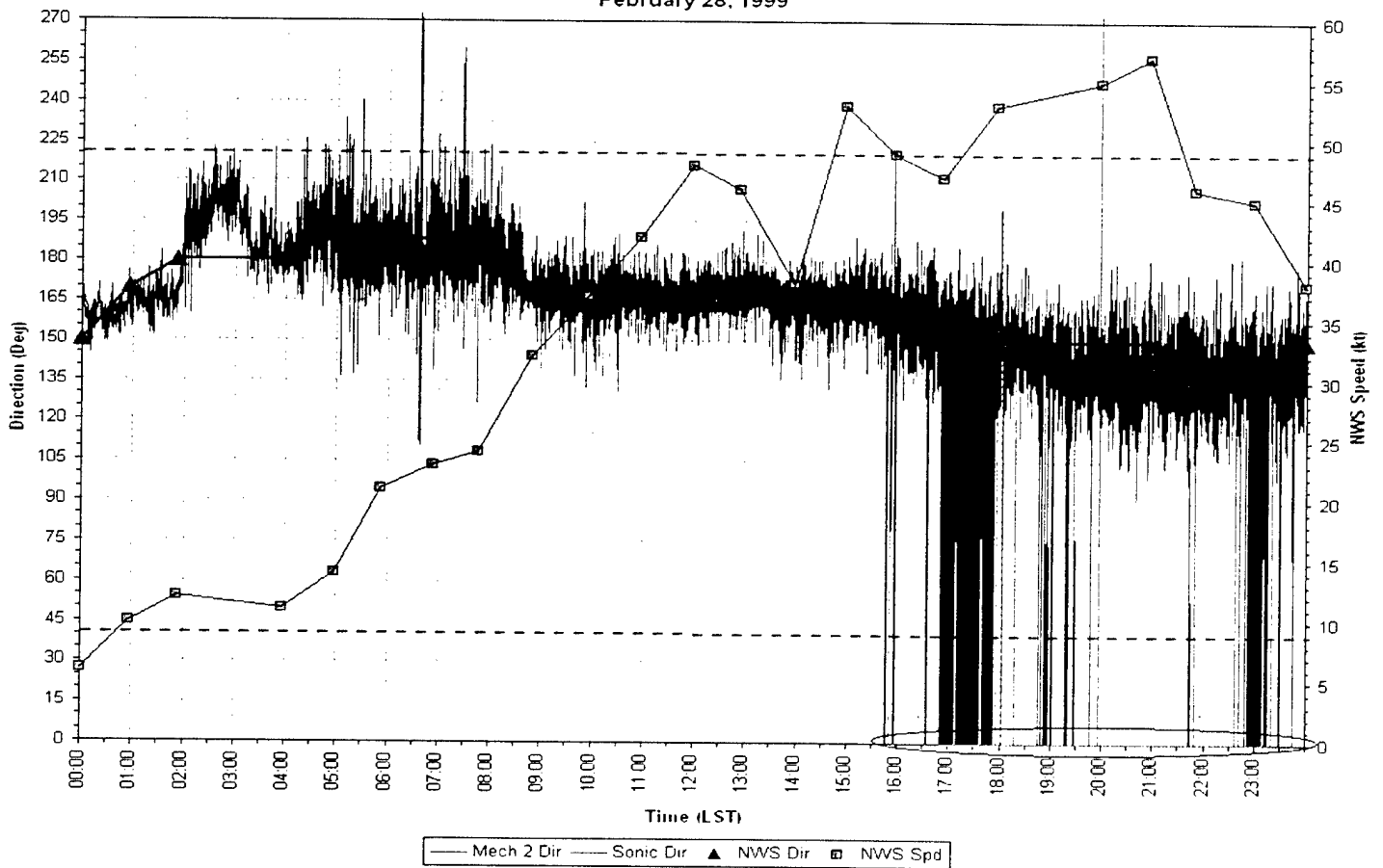
February 27, 1999



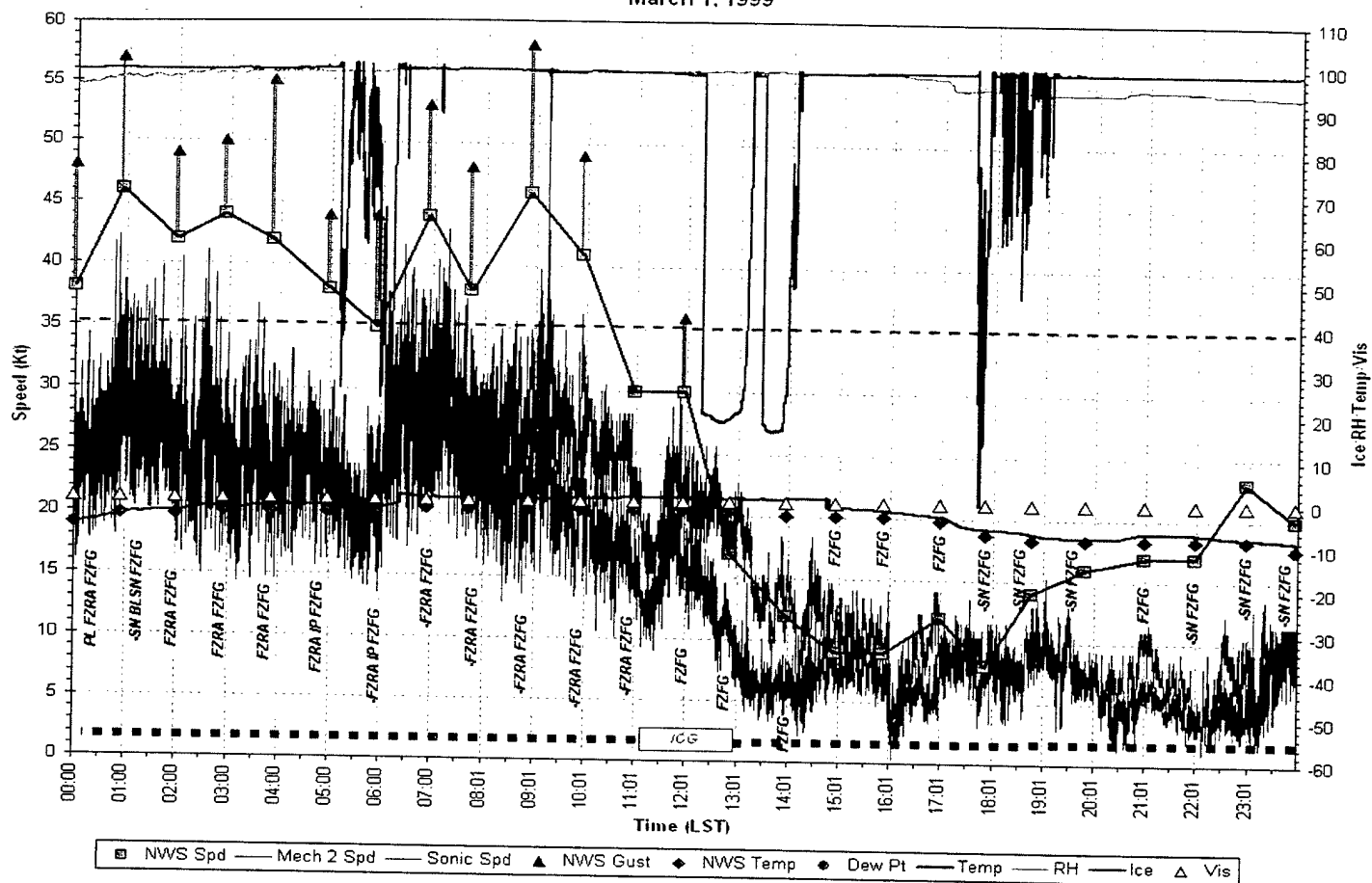
February 28, 1999



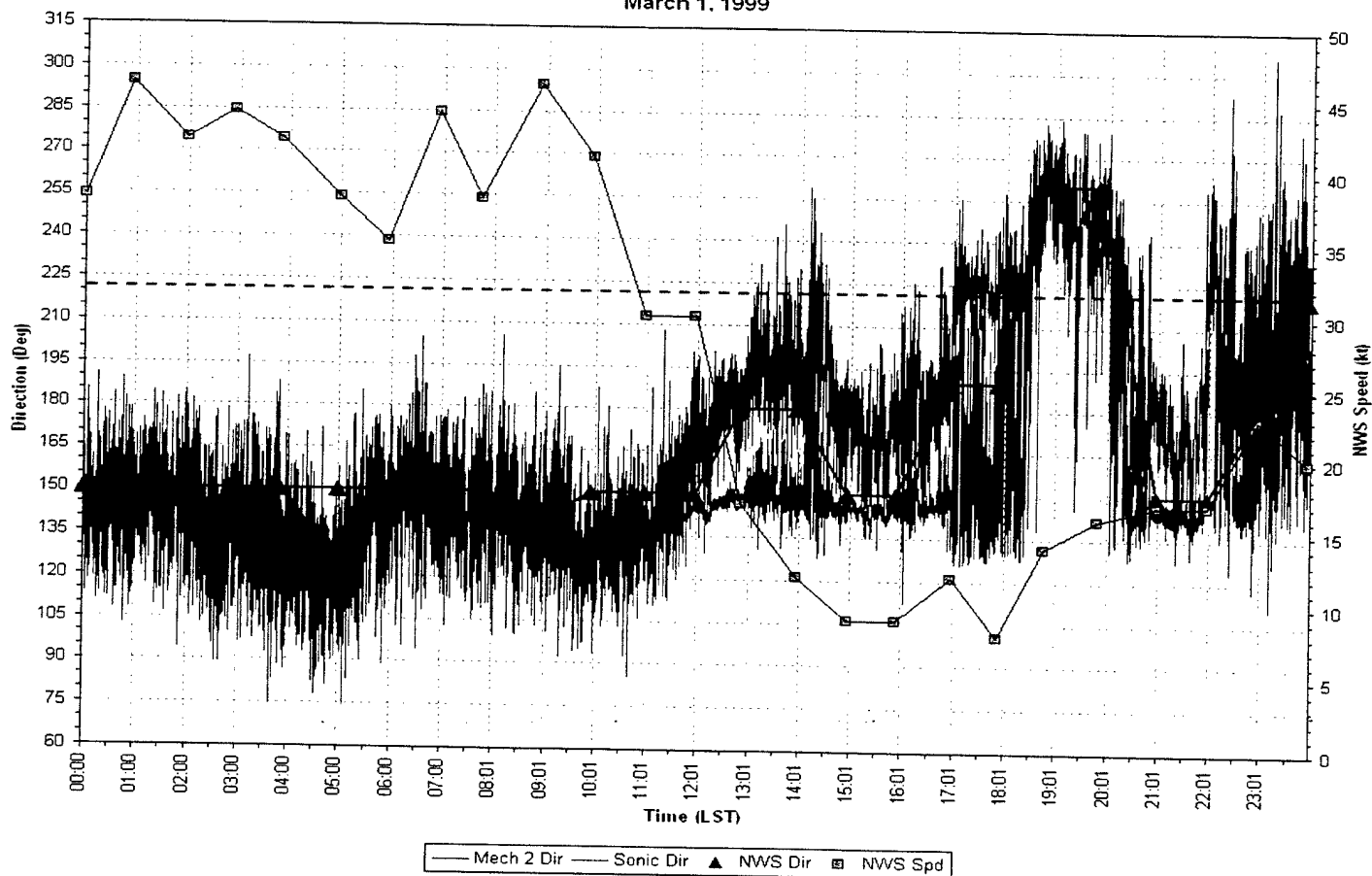
February 28, 1999



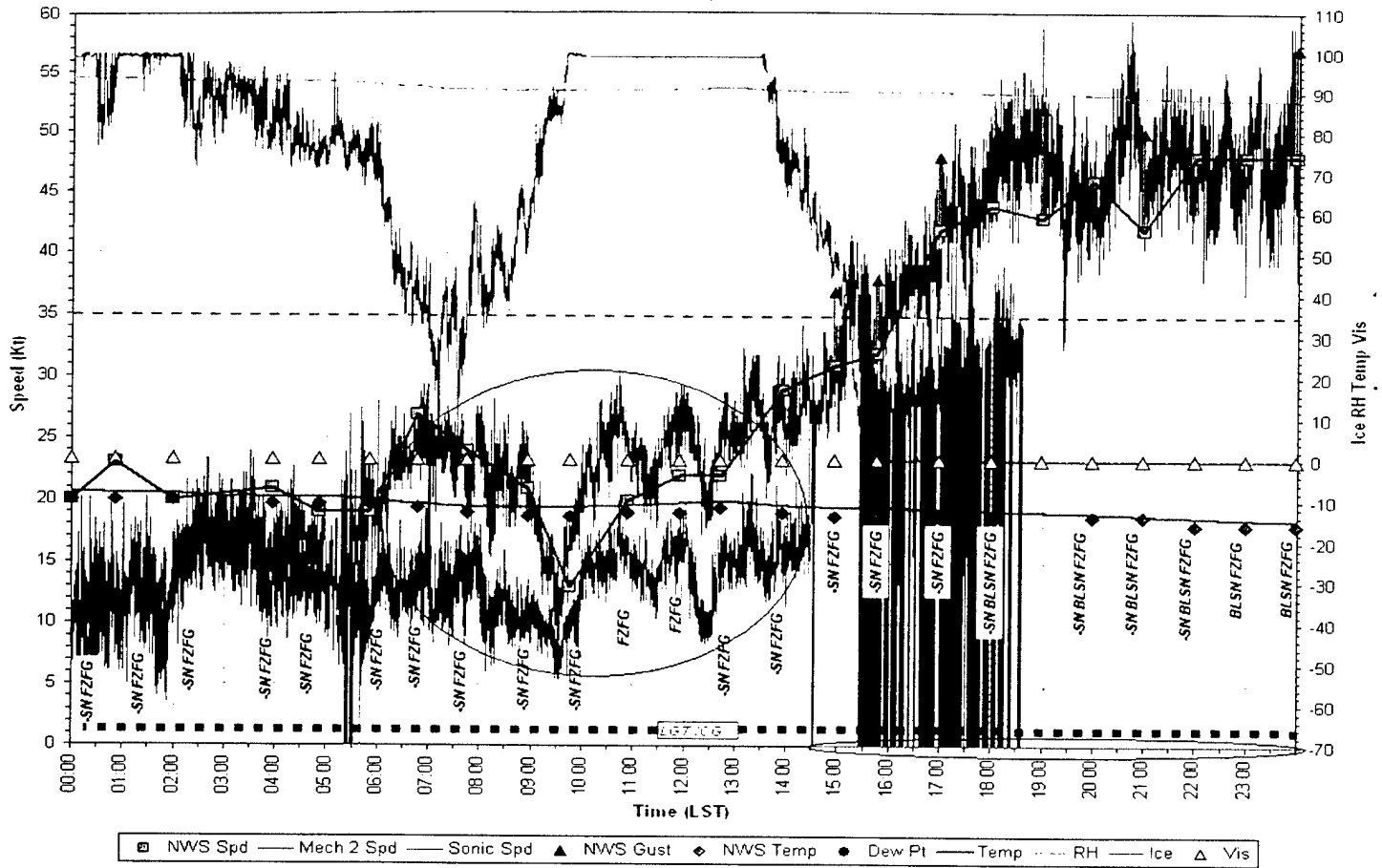
March 1, 1999



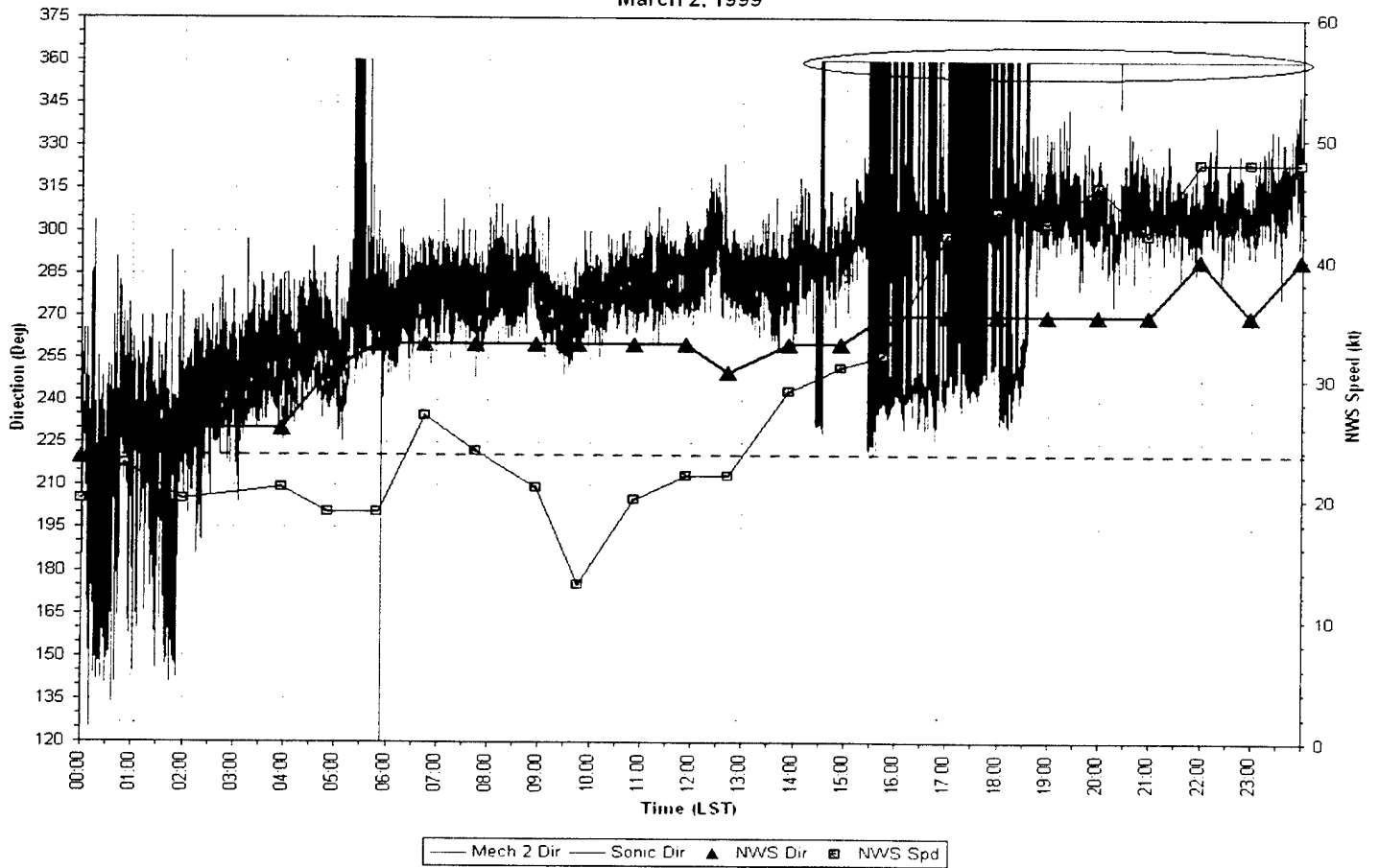
March 1, 1999



March 2, 1999

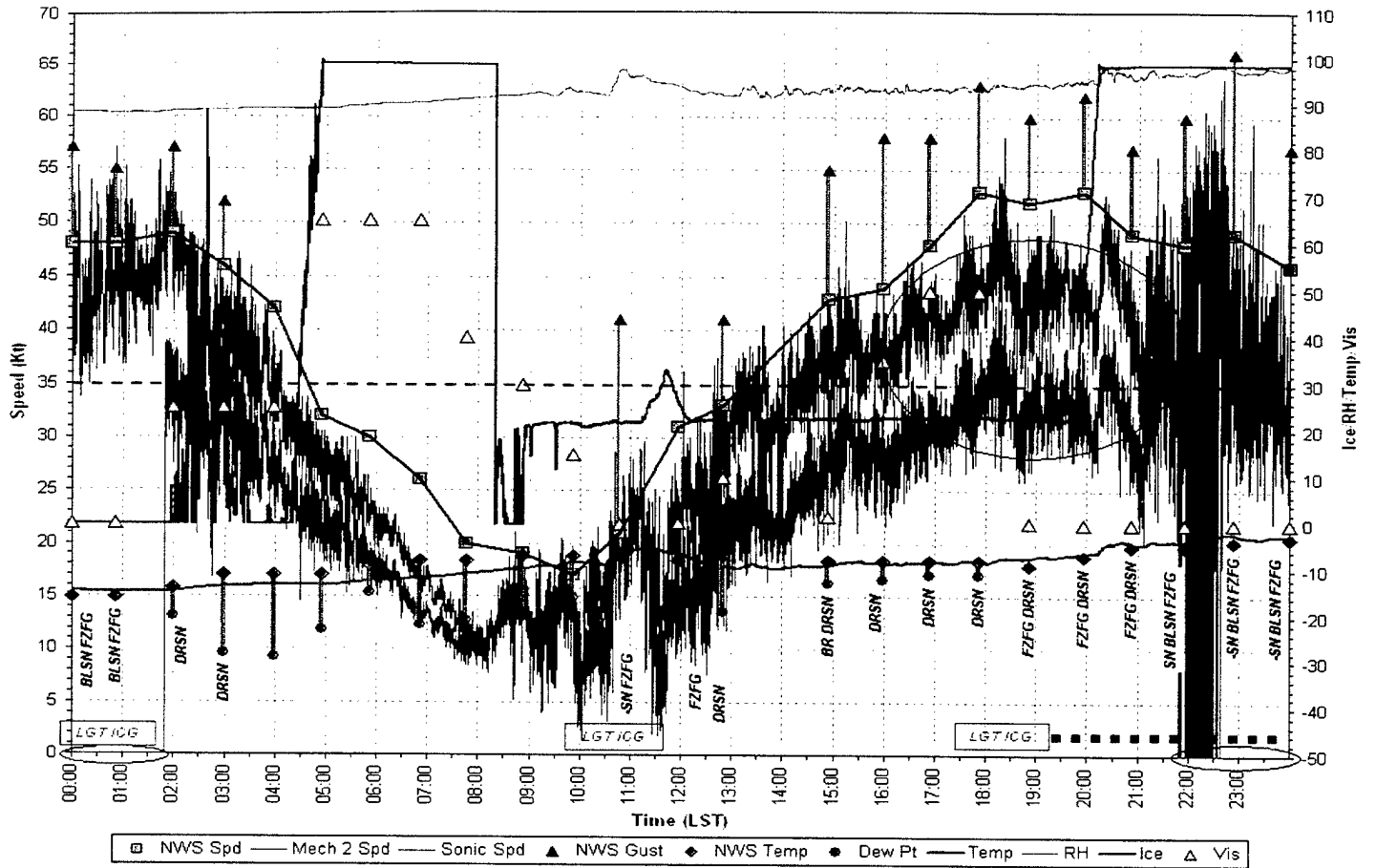


March 2, 1999

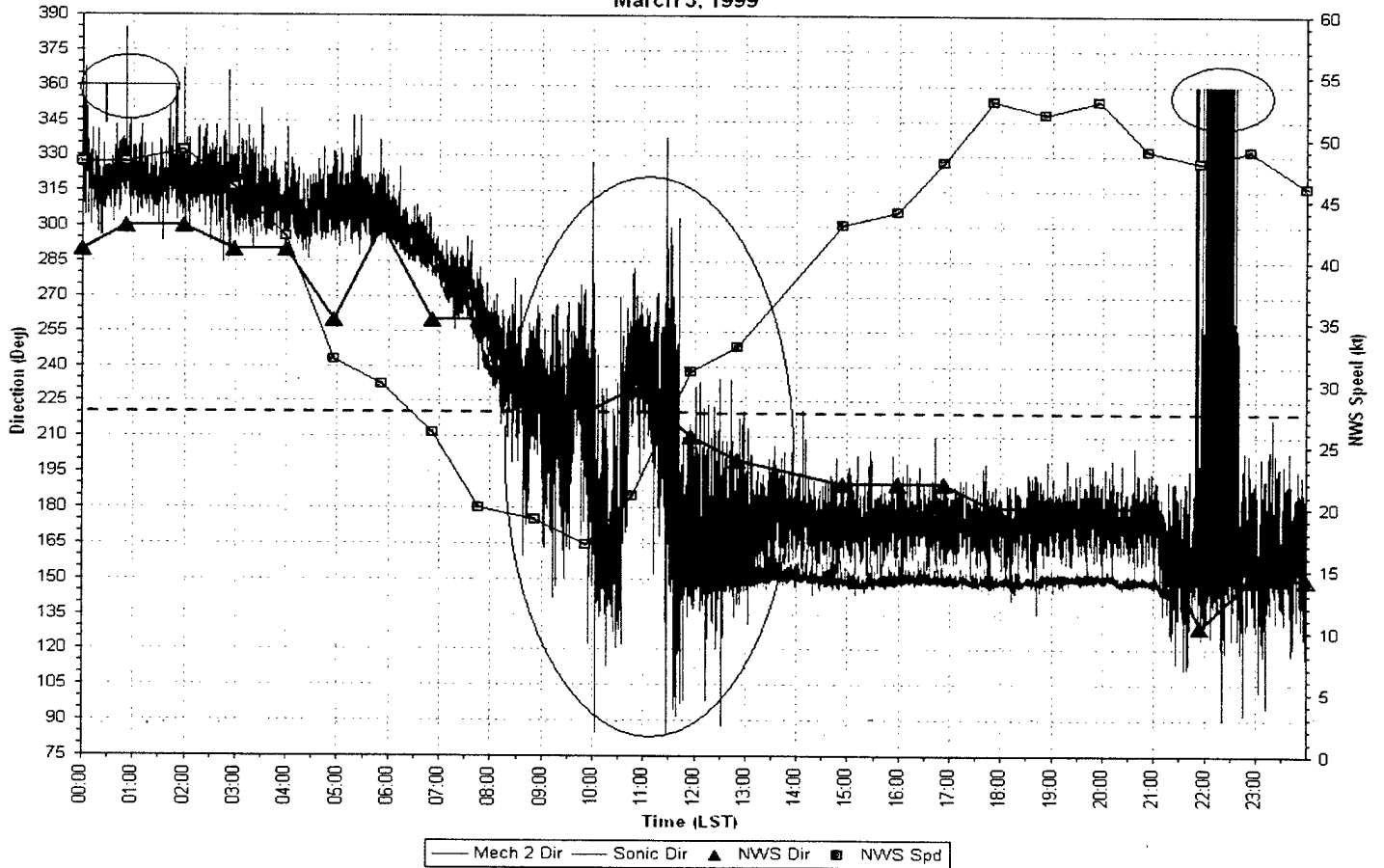




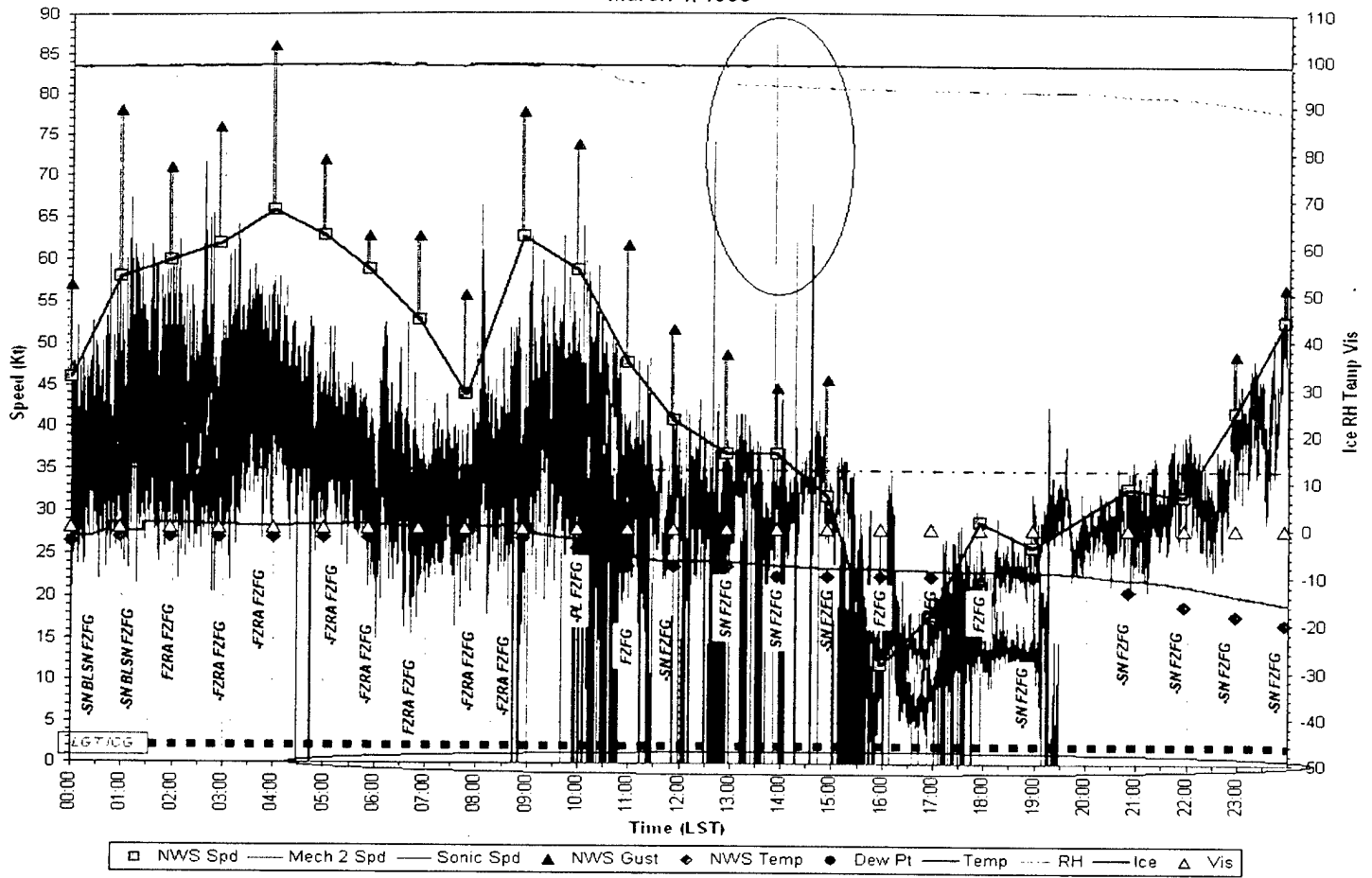
March 3, 1999



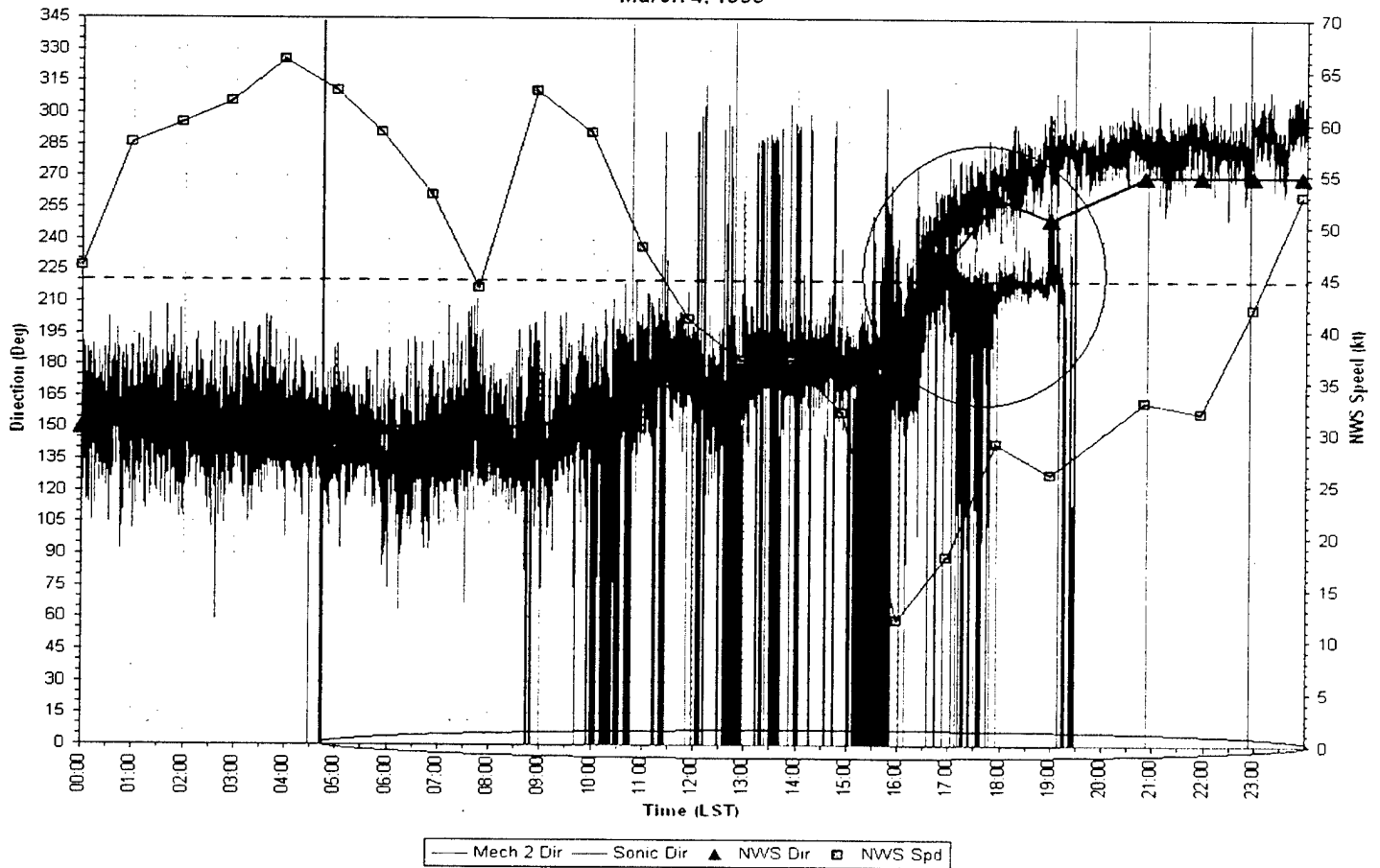
March 3, 1999



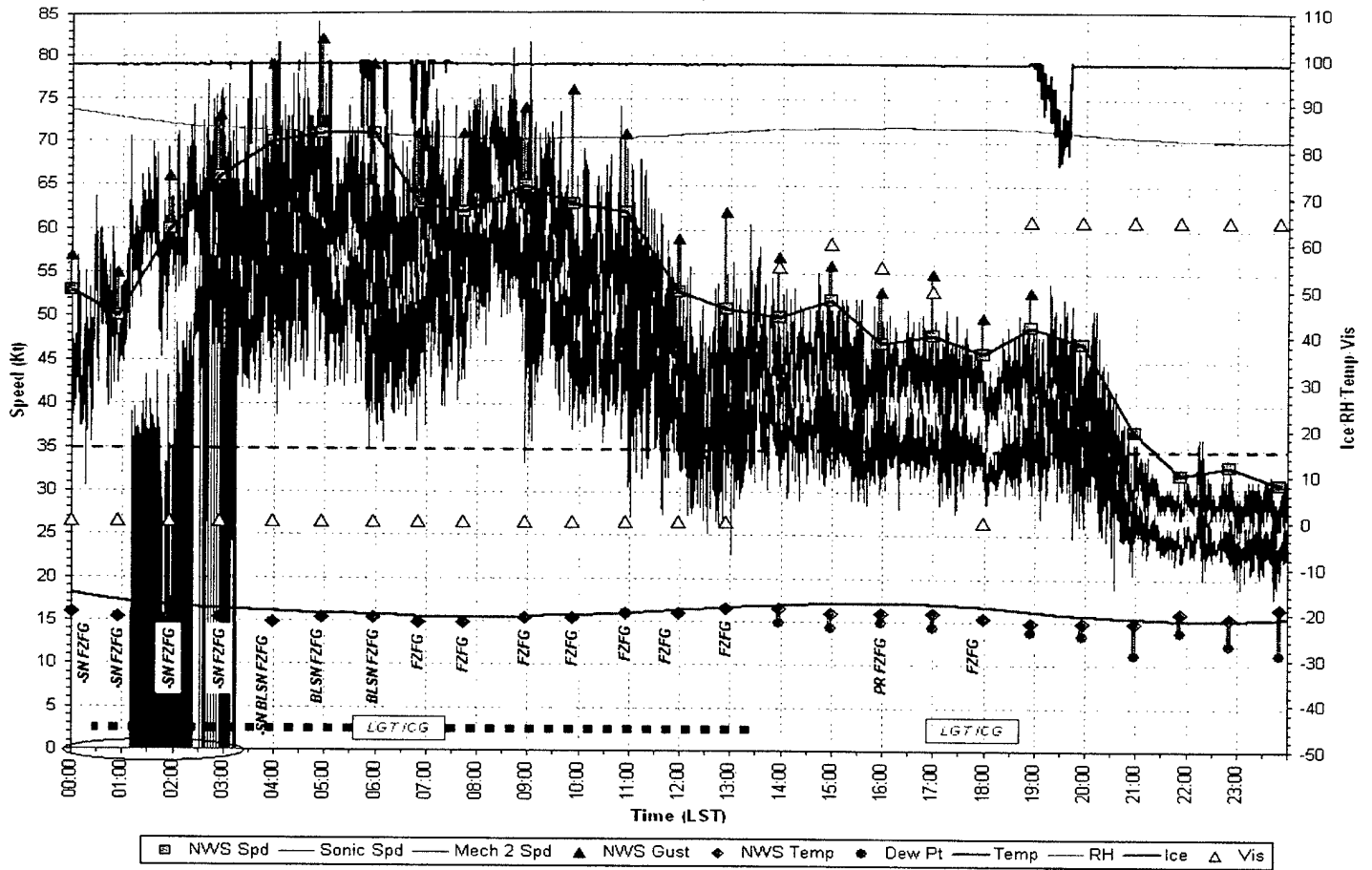
March 4, 1999



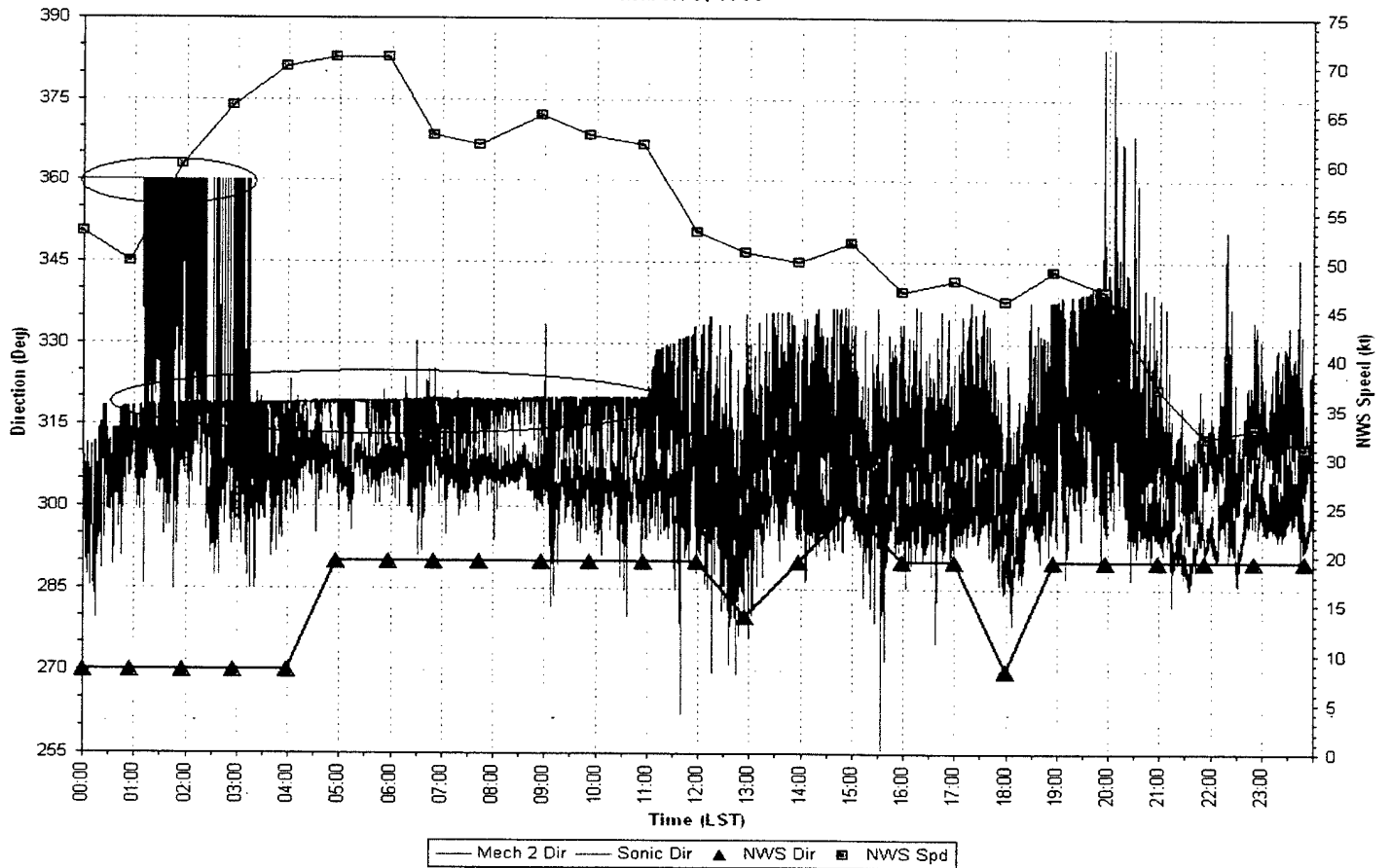
March 4, 1999



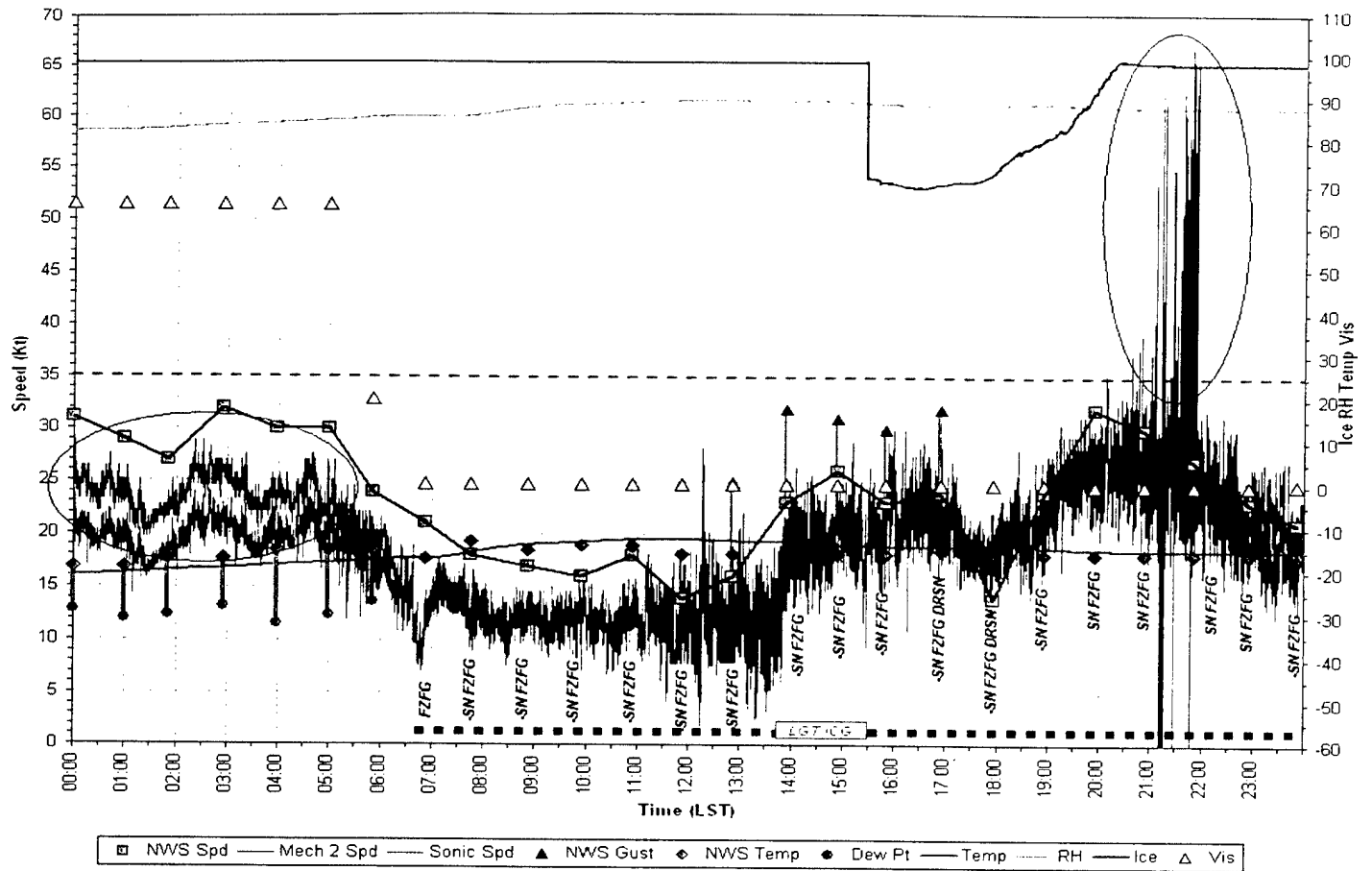
March 5, 1999



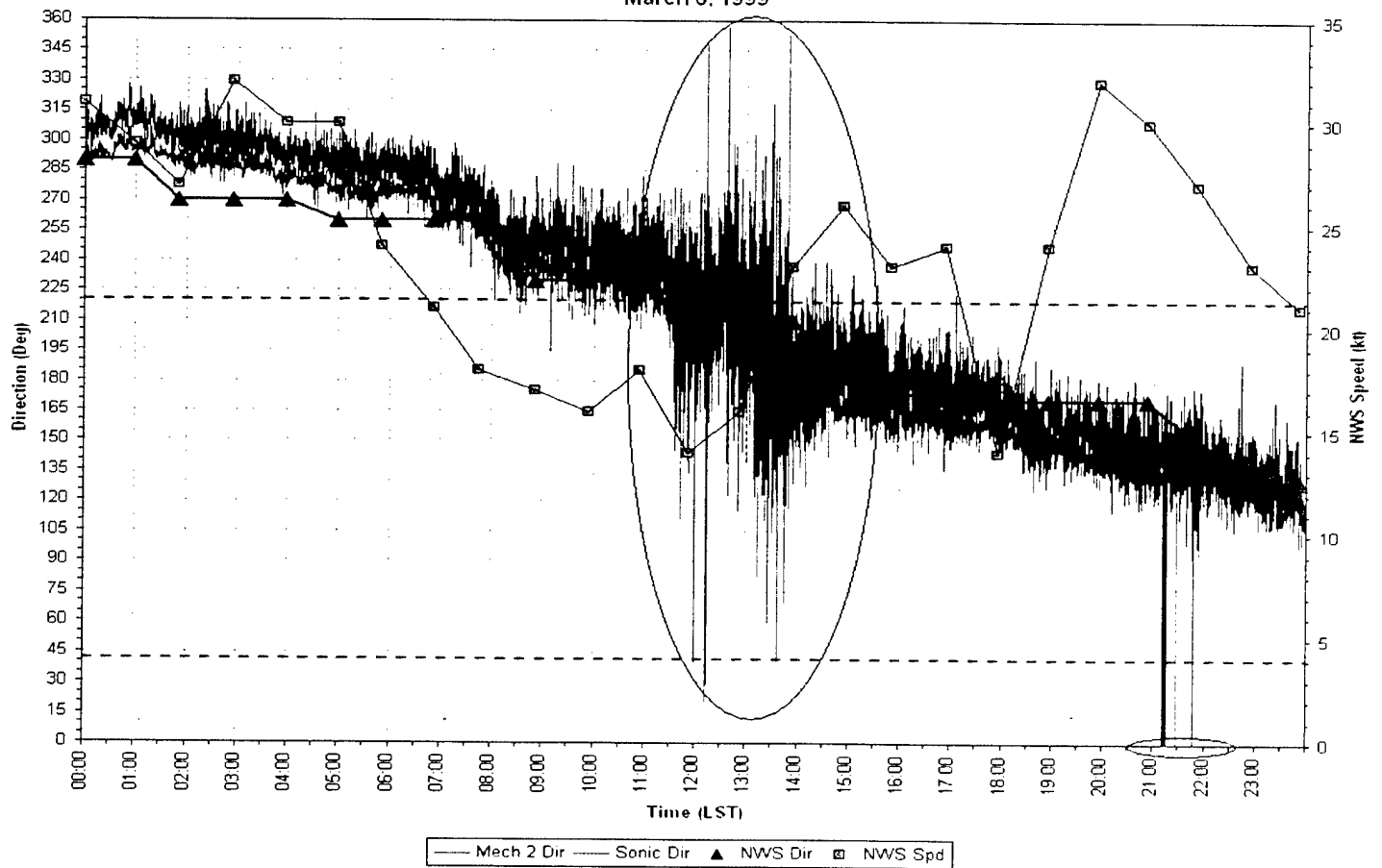
March 5, 1999



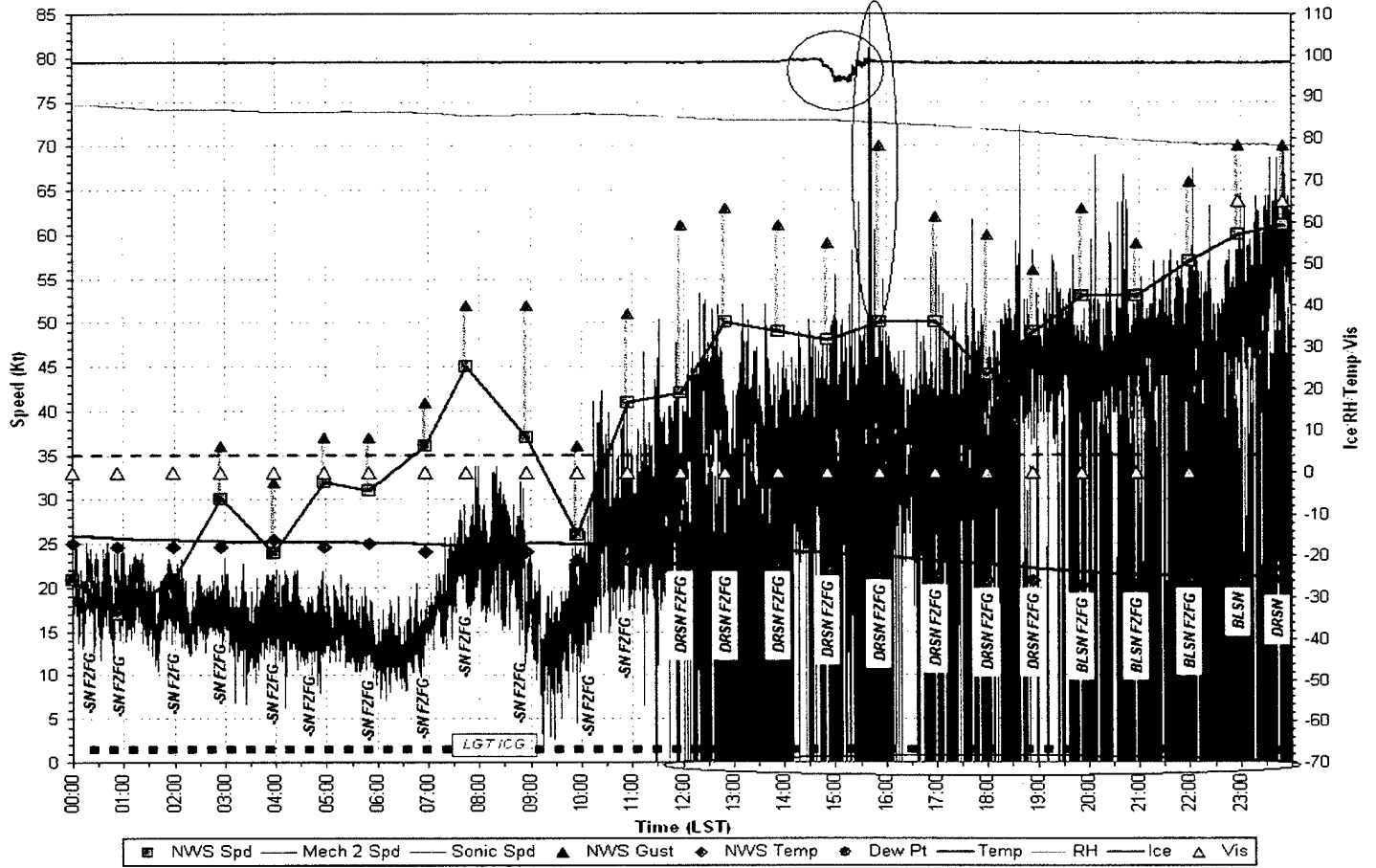
March 6, 1999



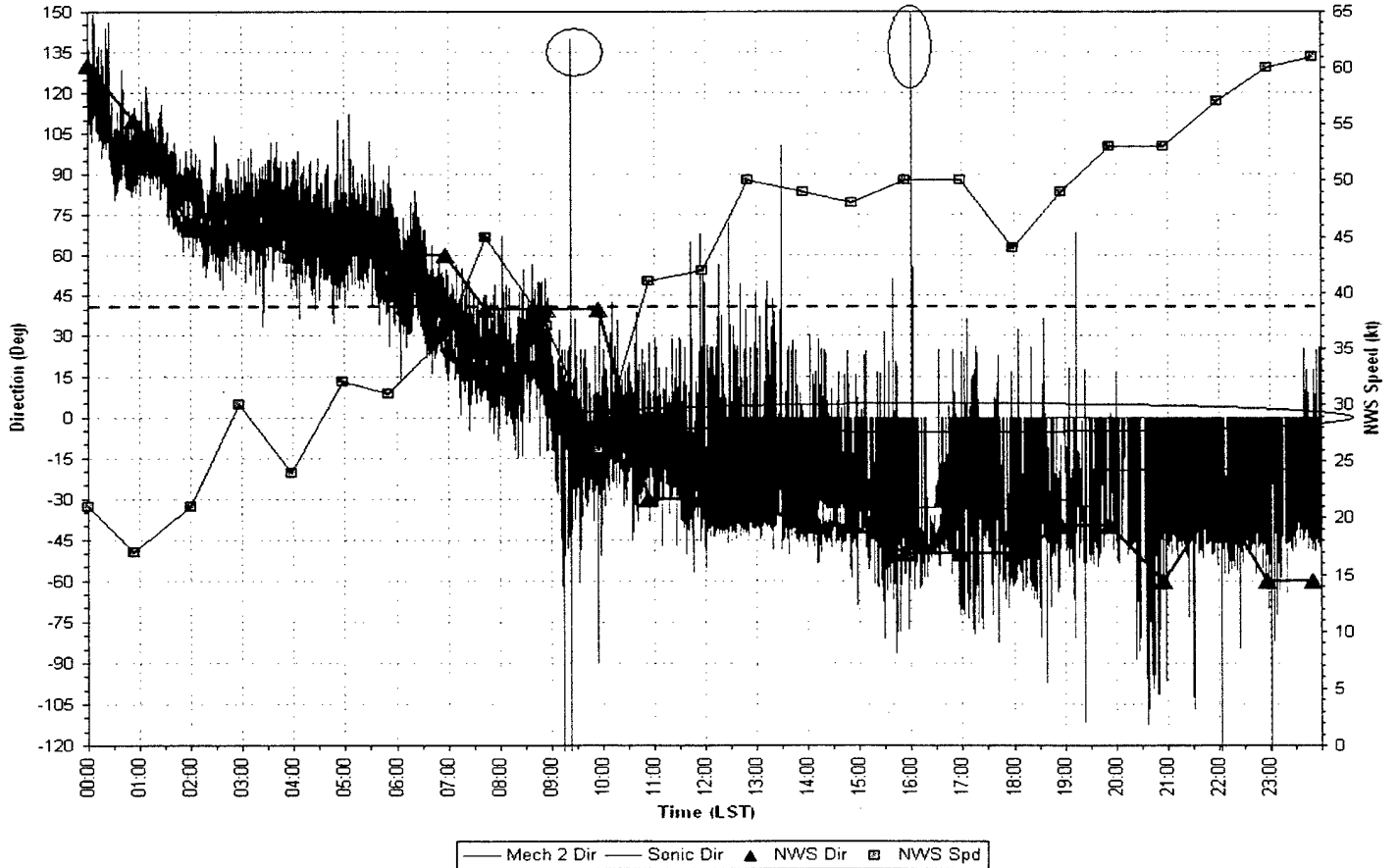
March 6, 1999



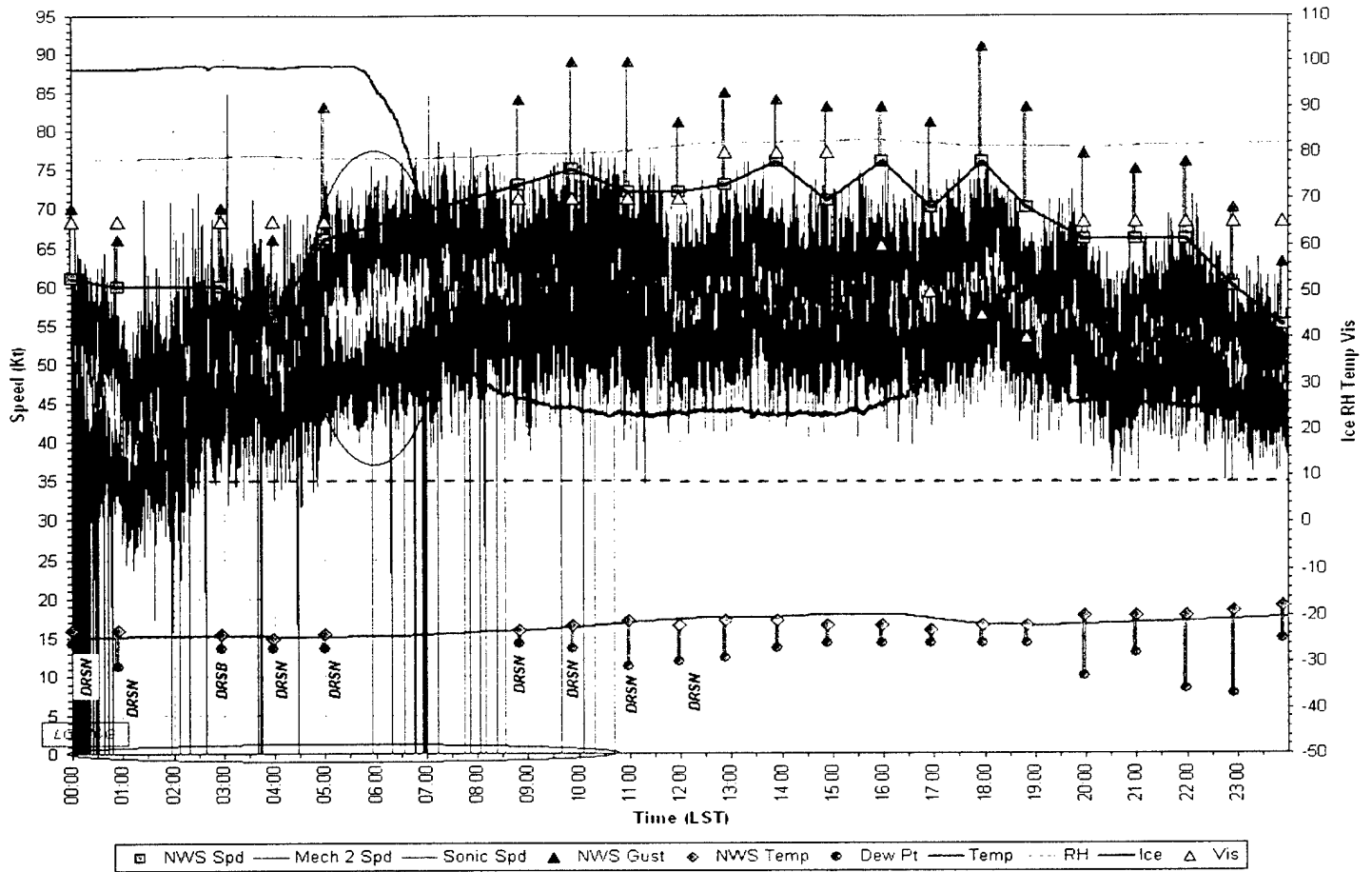
March 7, 1999



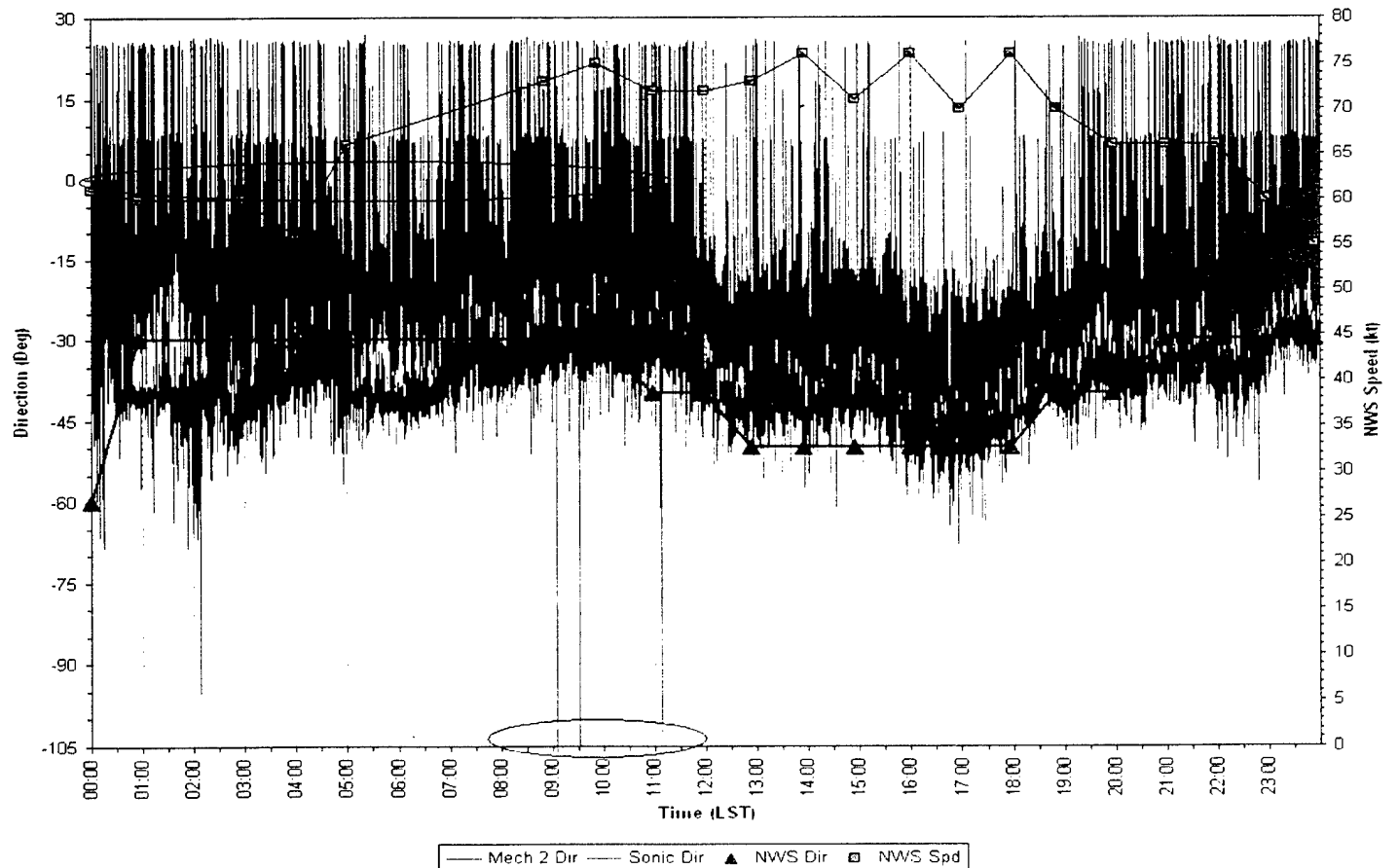
March 7, 1999



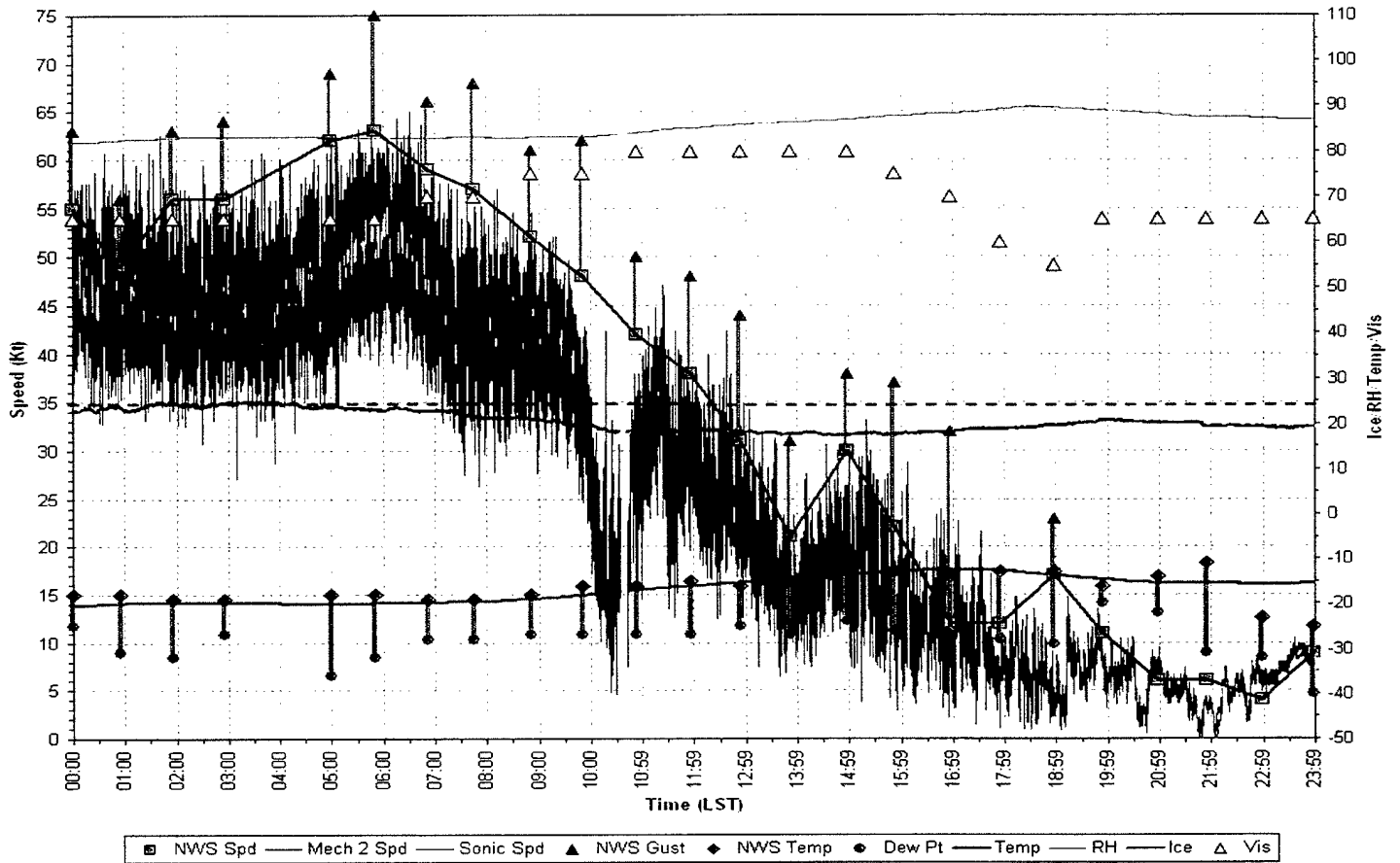
March 8, 1999



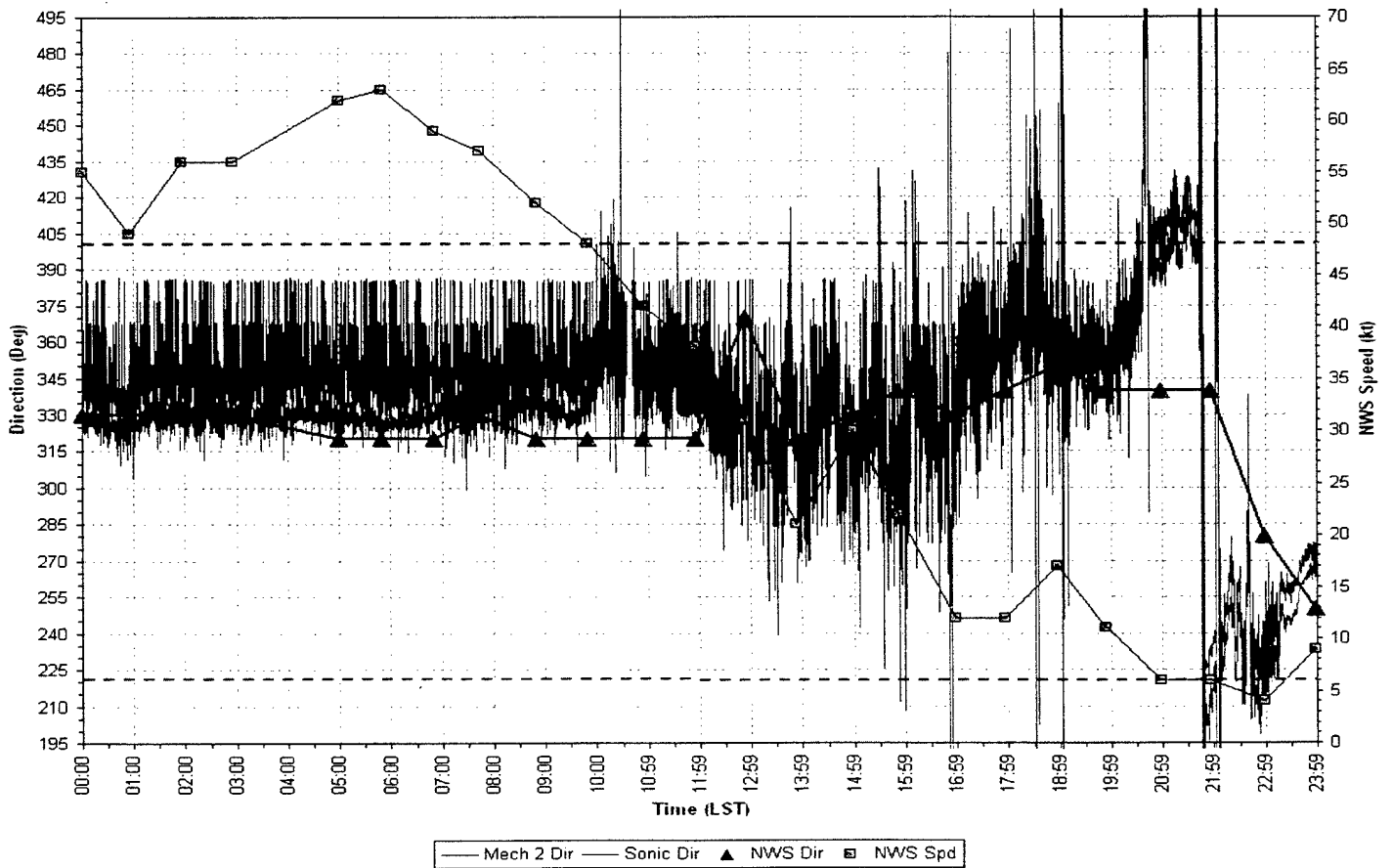
March 8, 1999



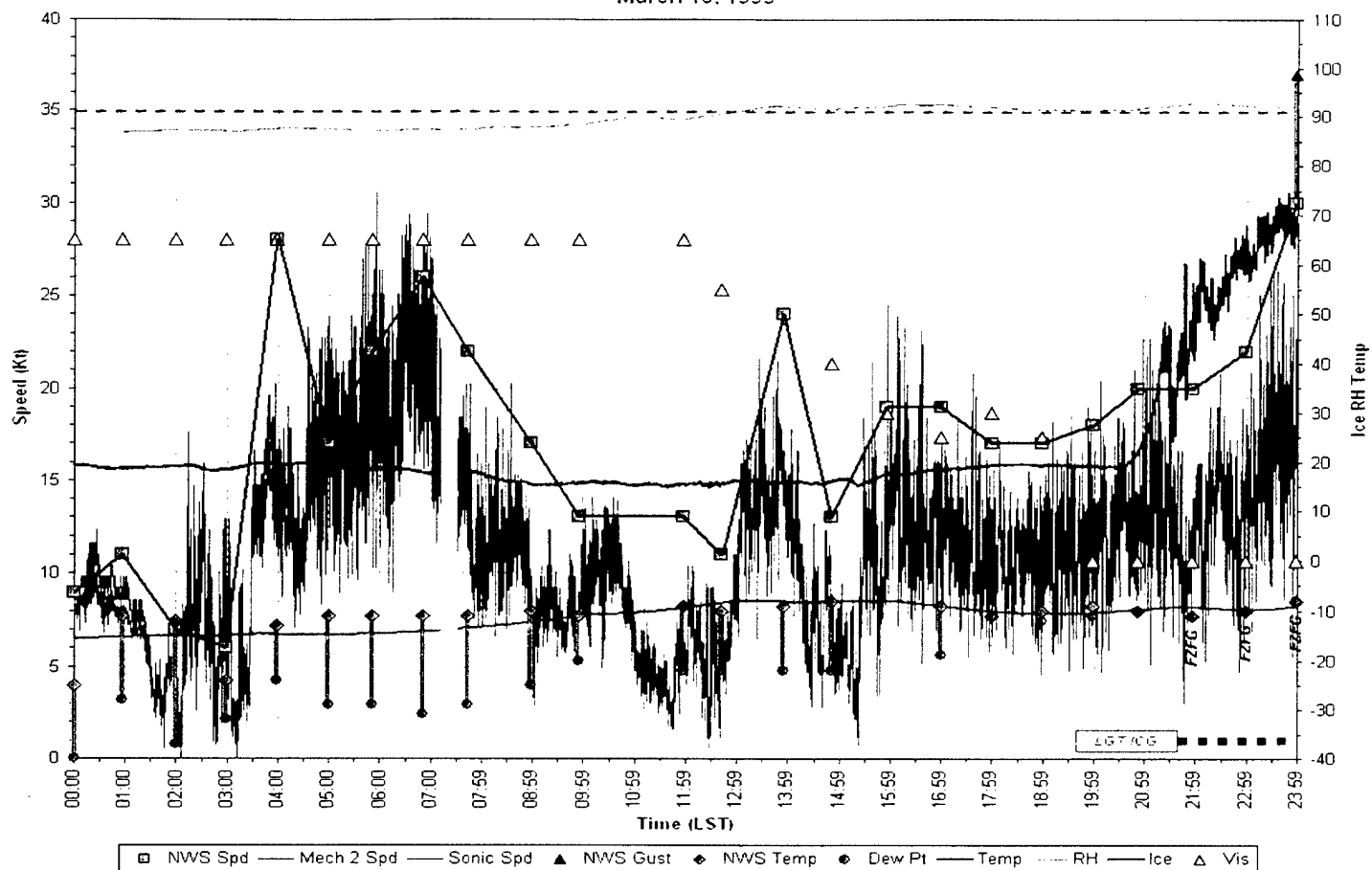
March 9, 1999



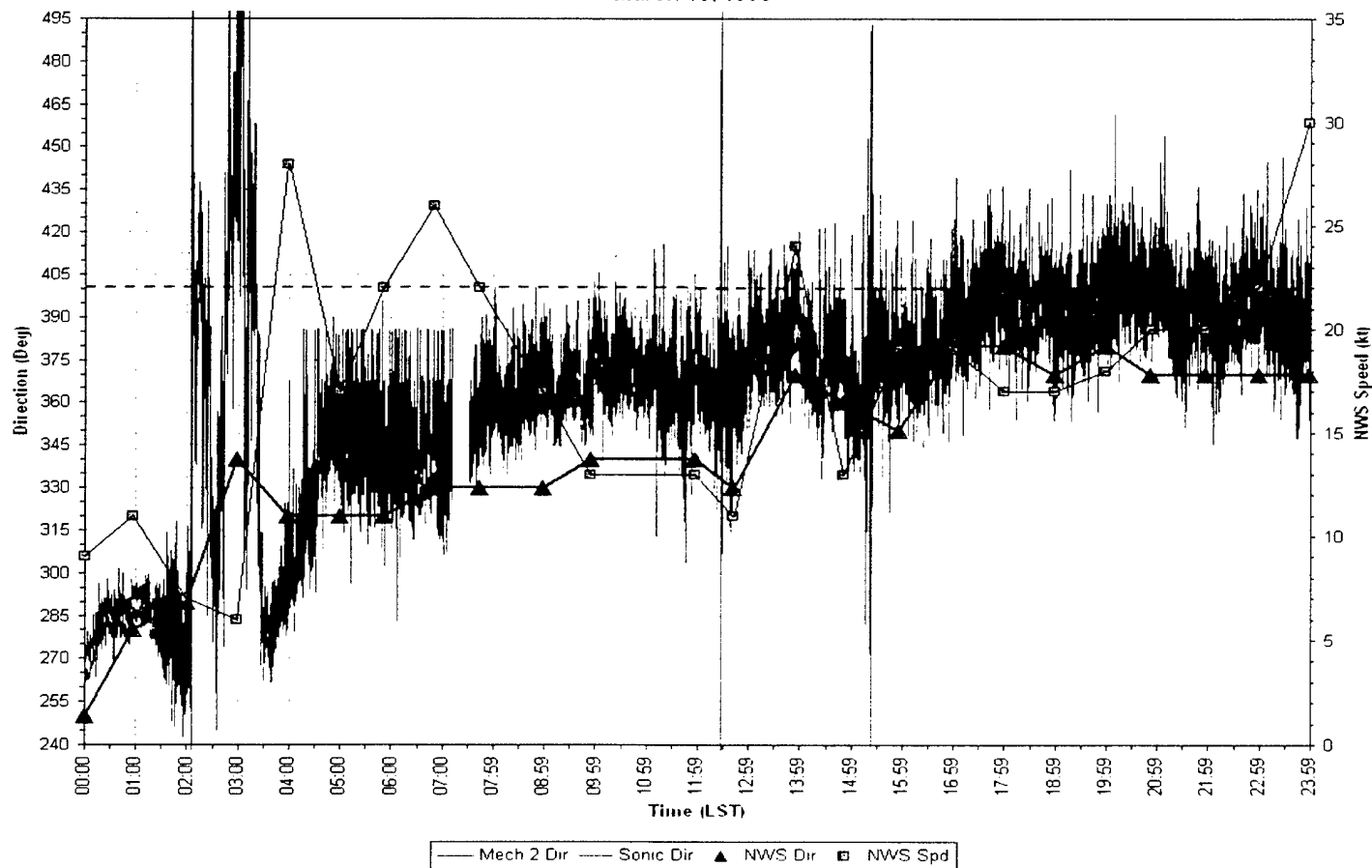
March 9, 1999



March 10, 1999

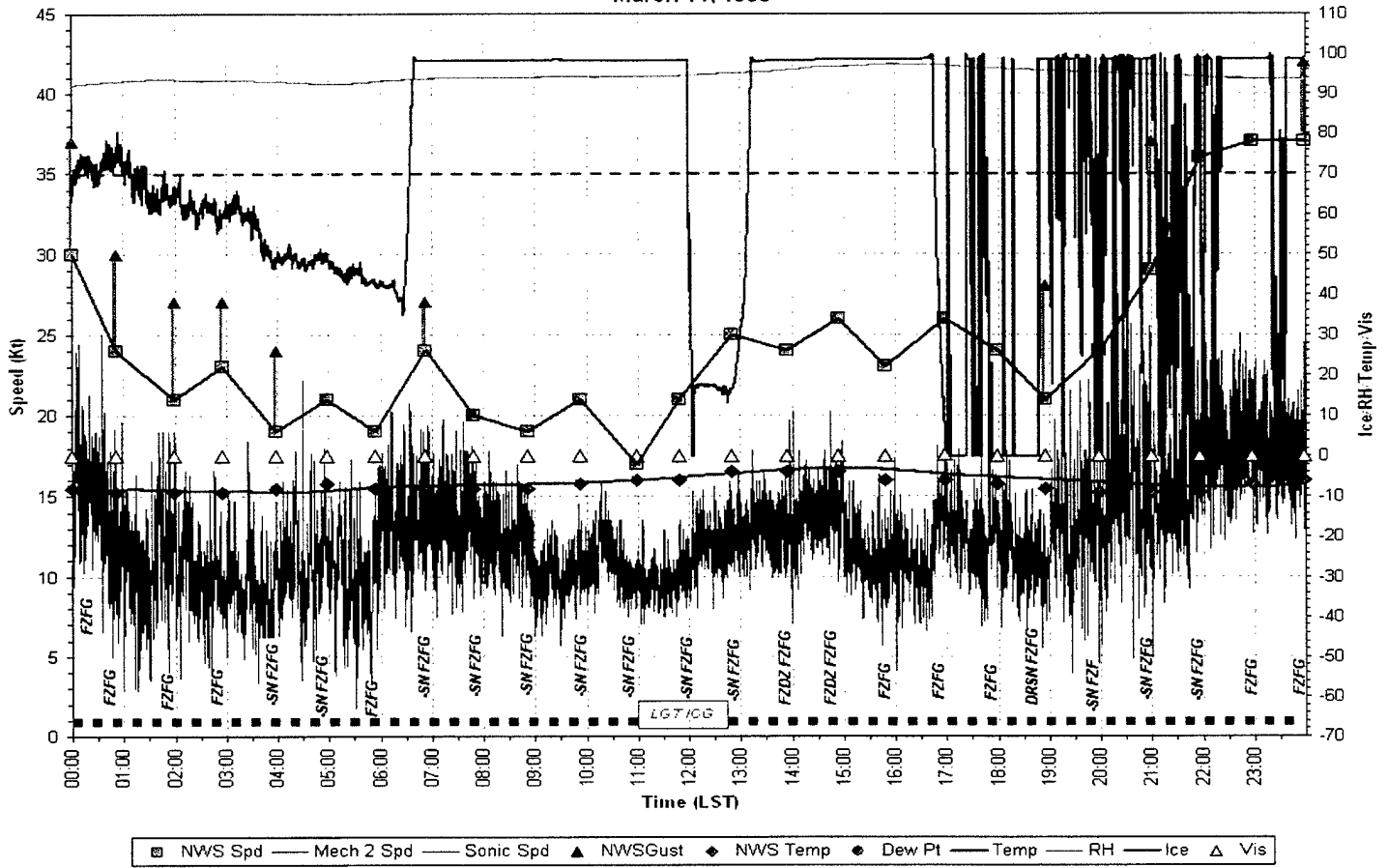


March 10, 1999

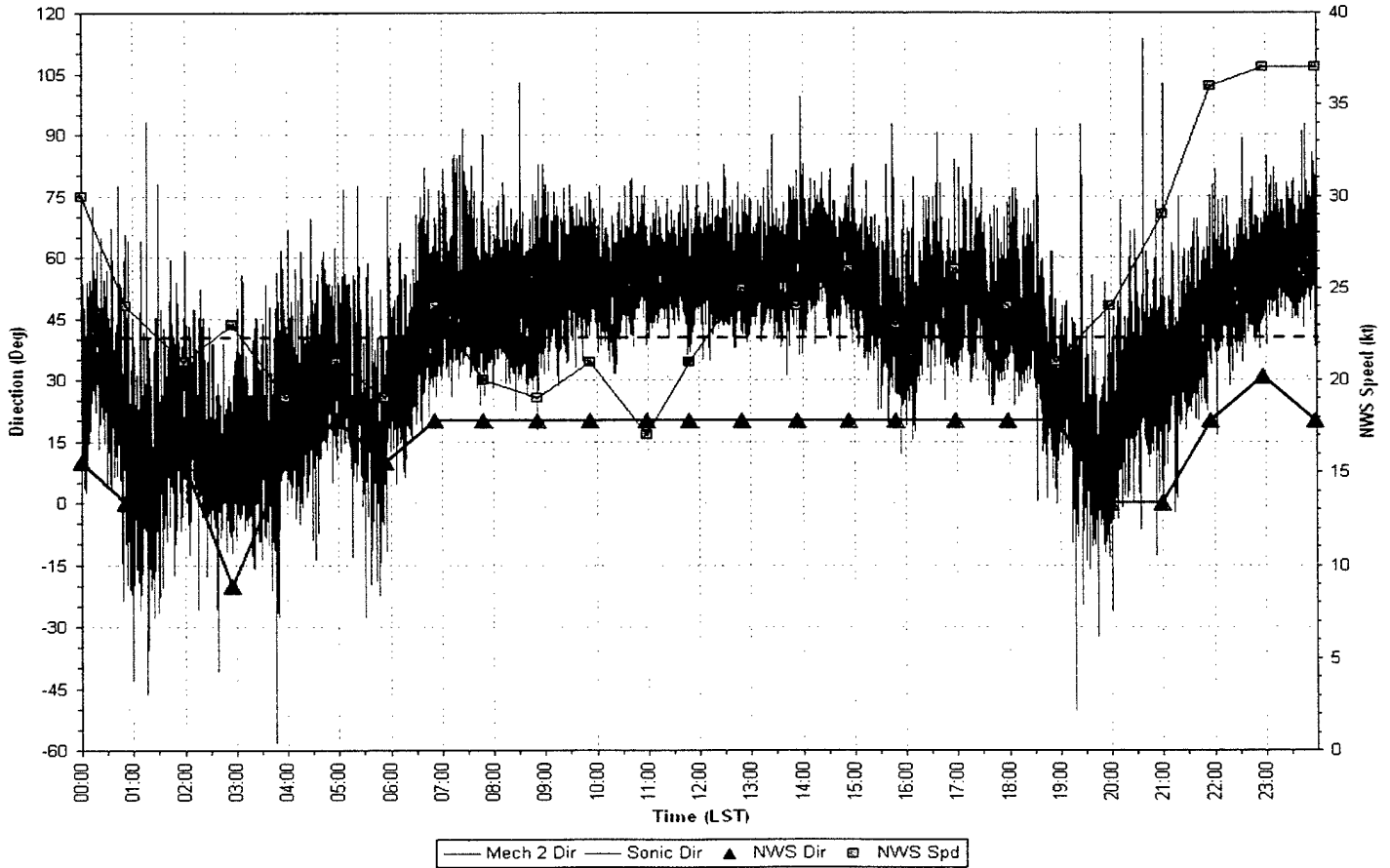


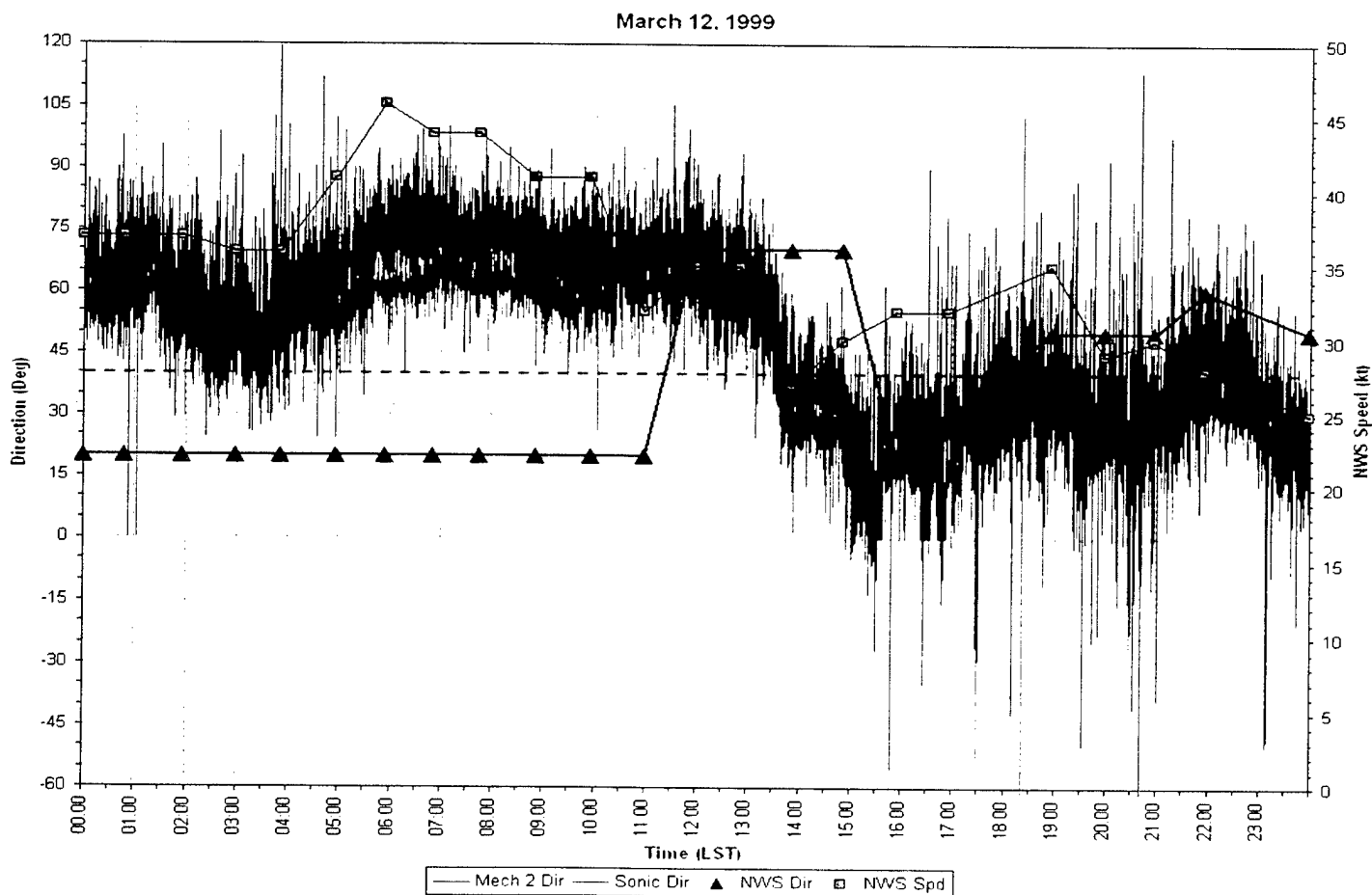
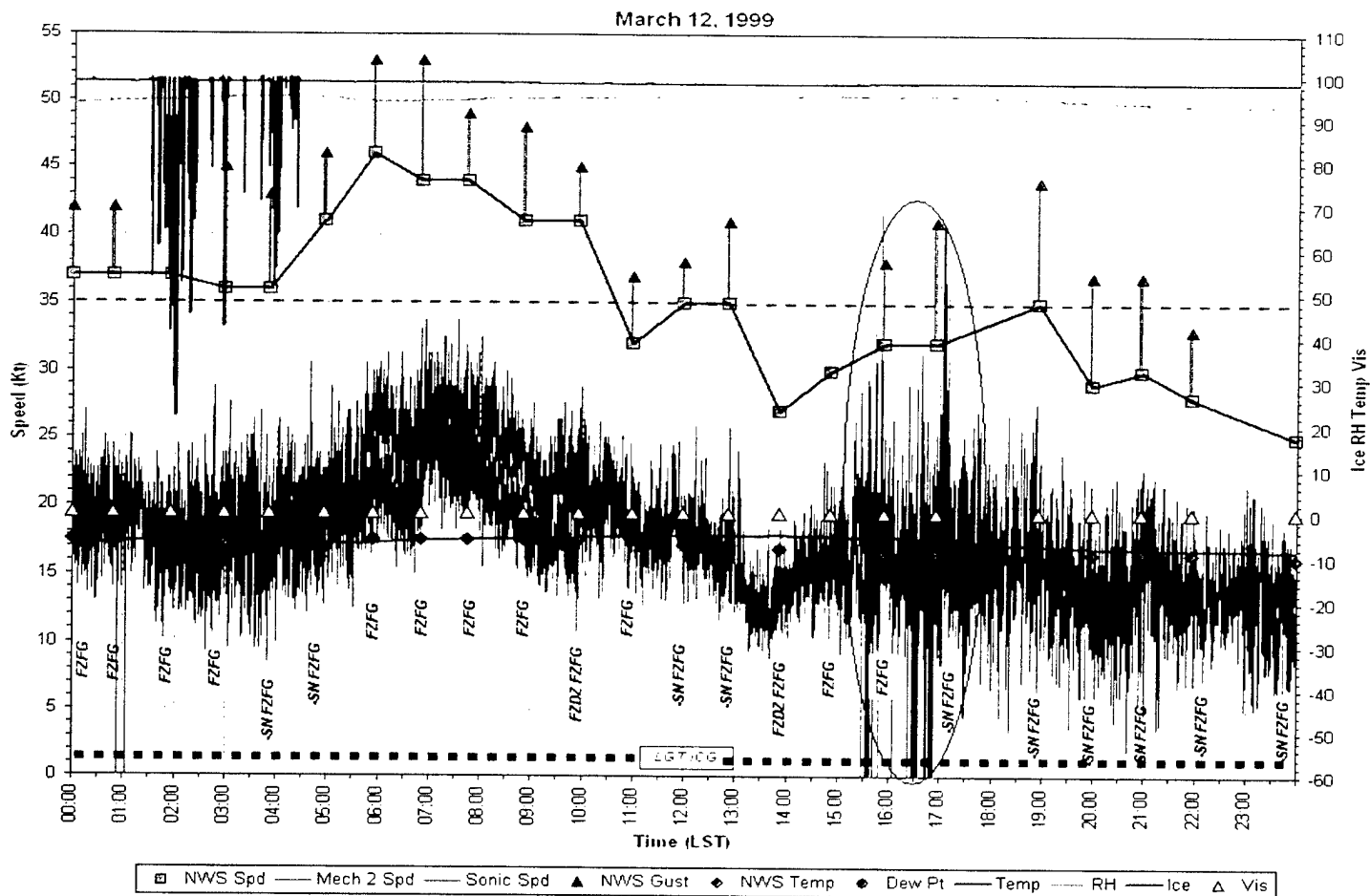


March 11, 1999

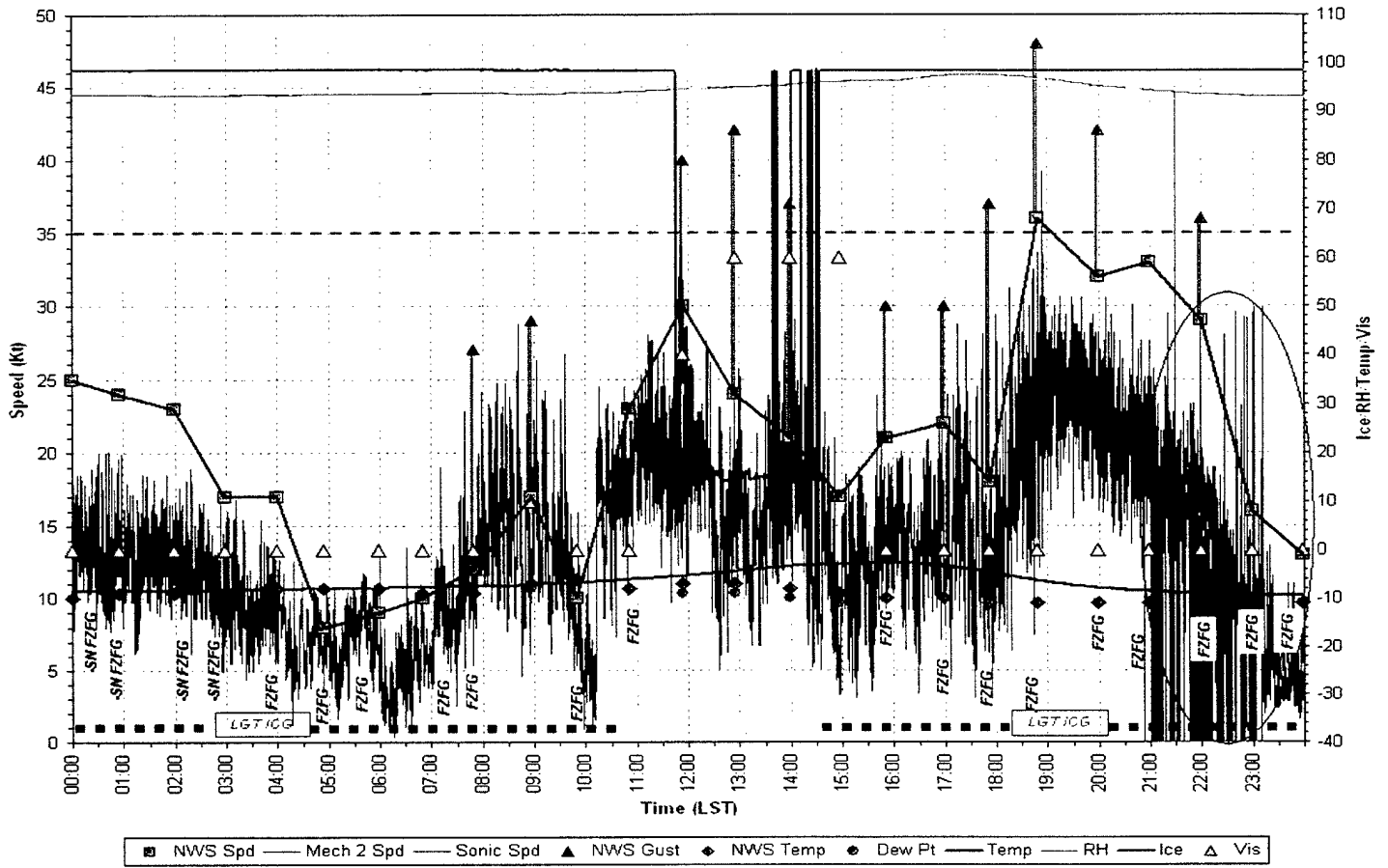


March 11, 1999

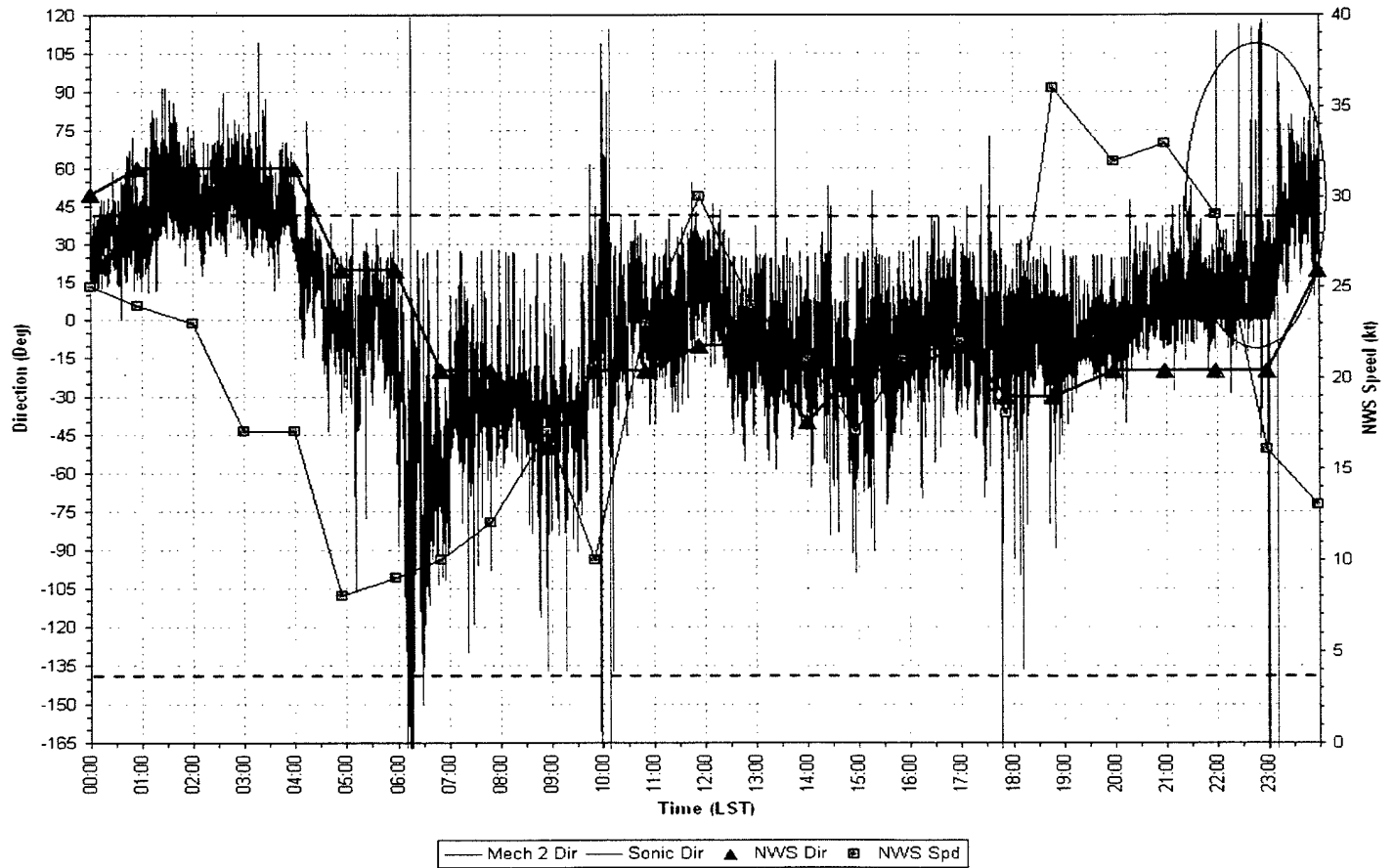




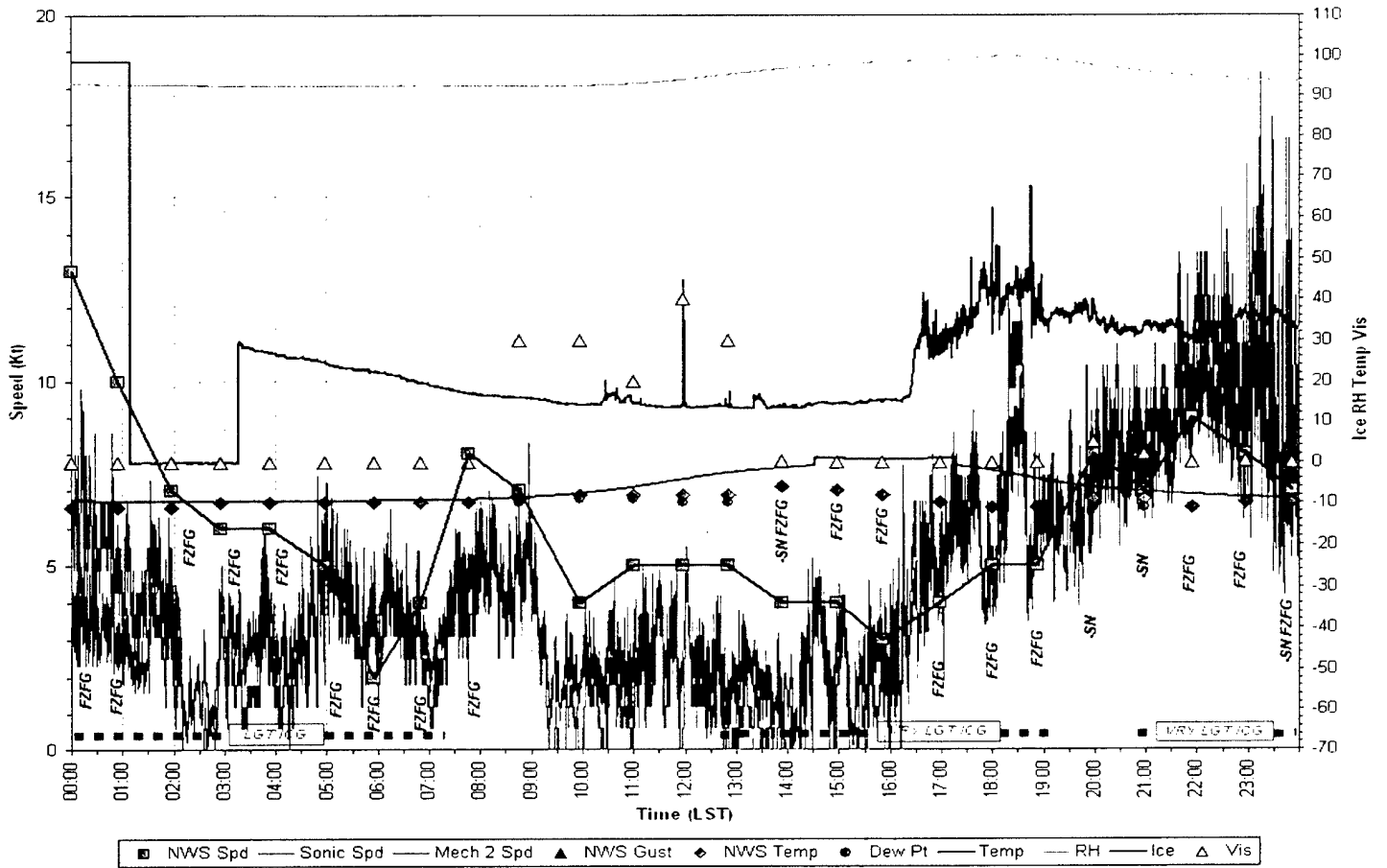
March 13, 1999



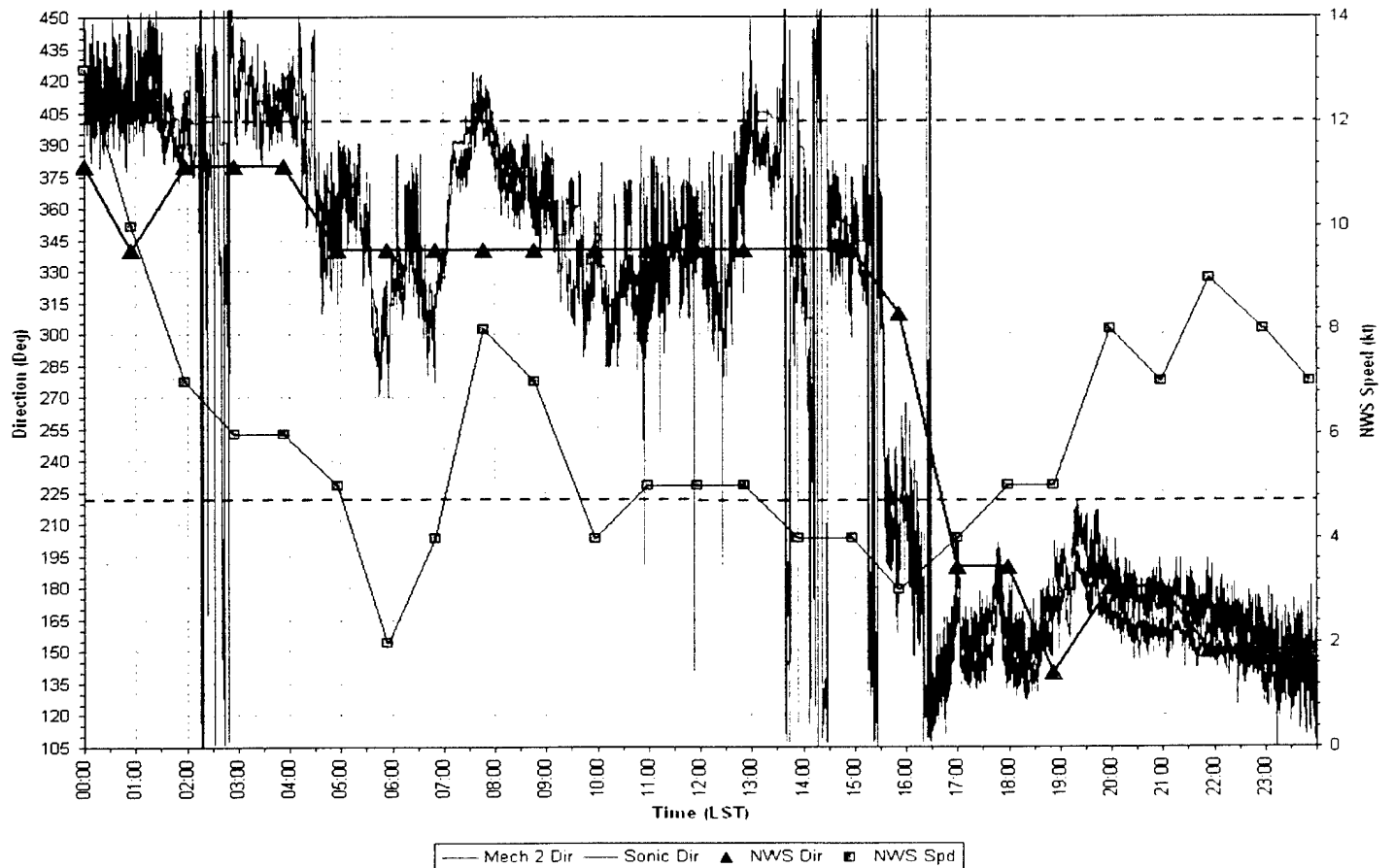
March 13, 1999



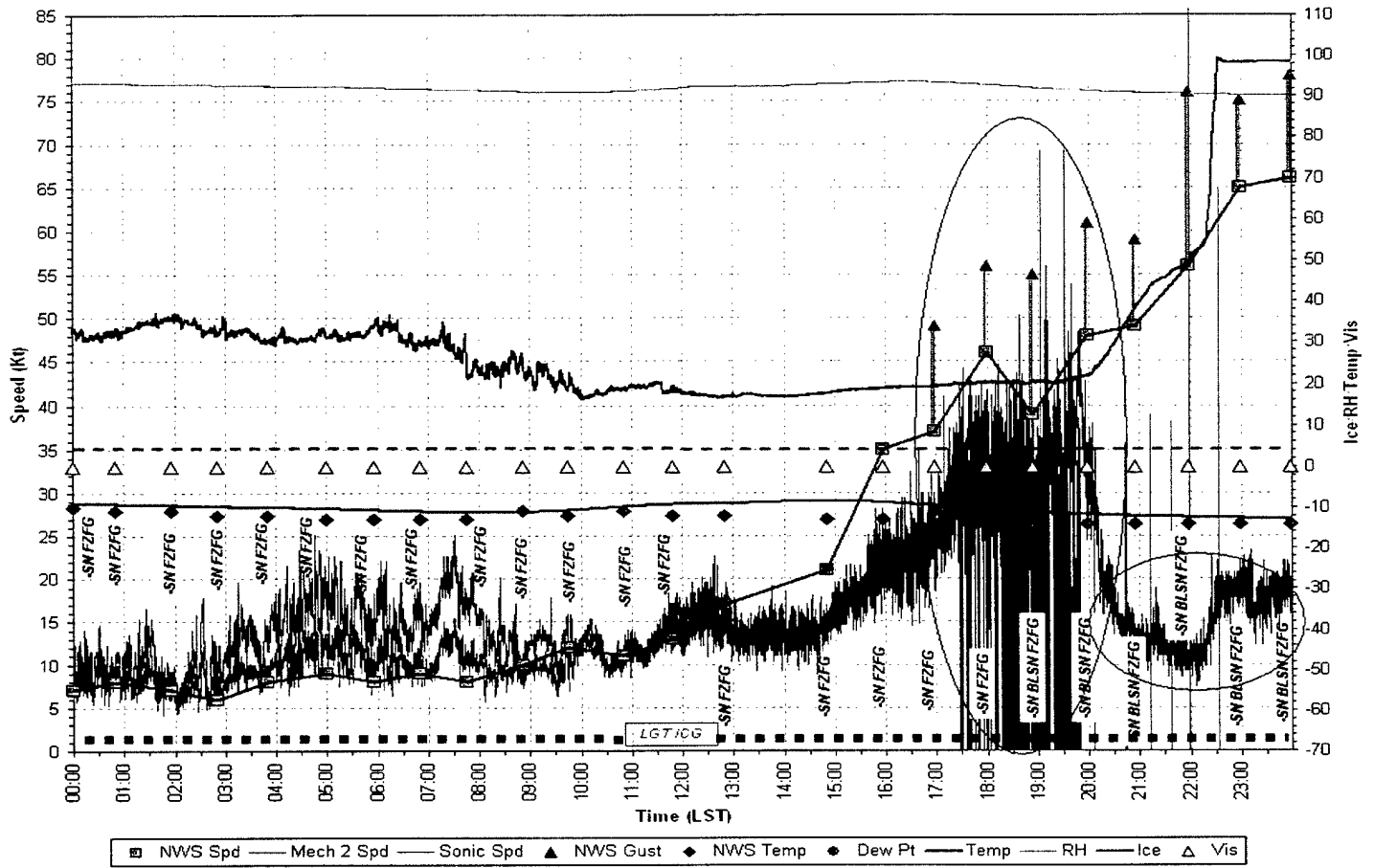
March 14, 1999



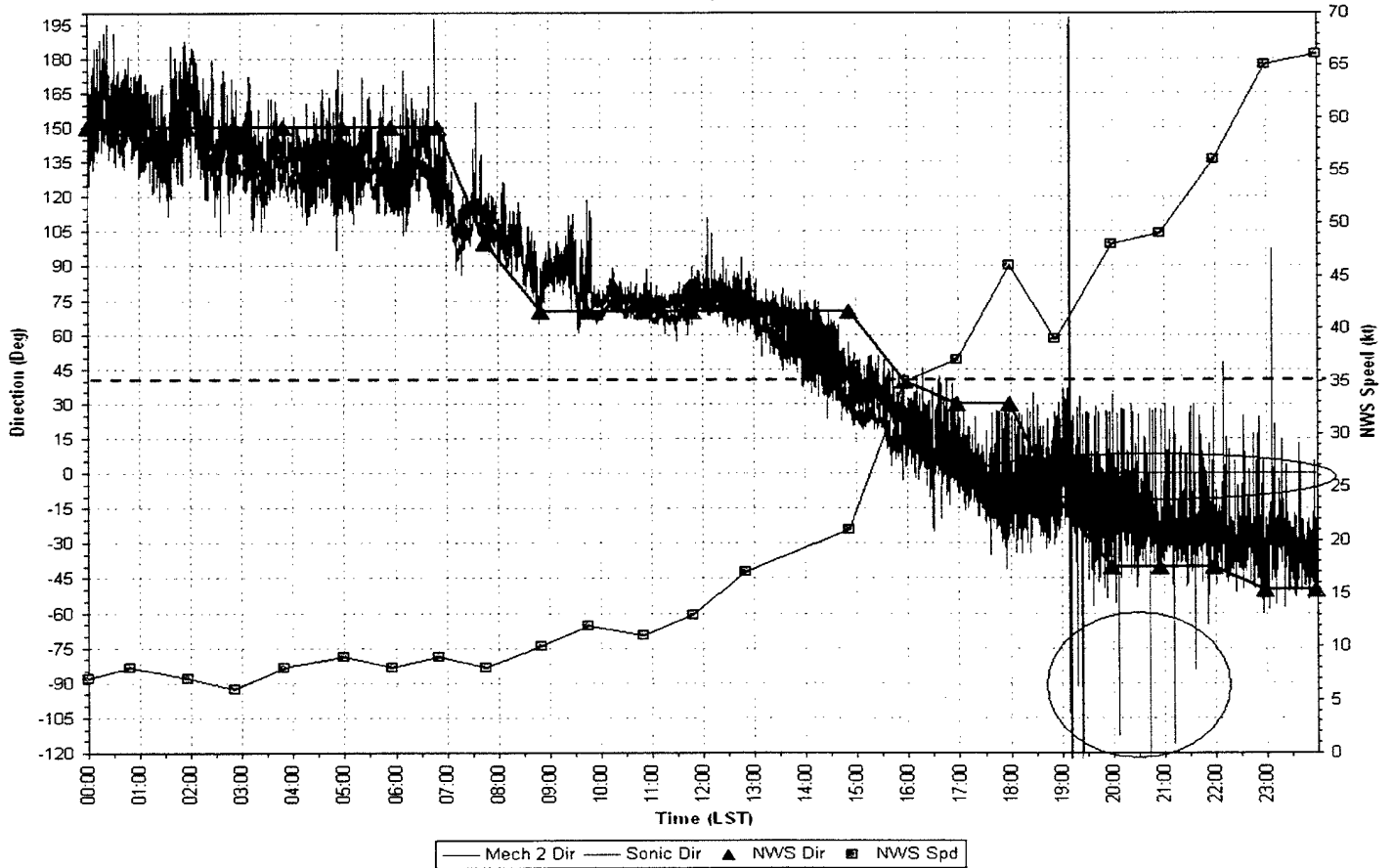
March 14, 1999



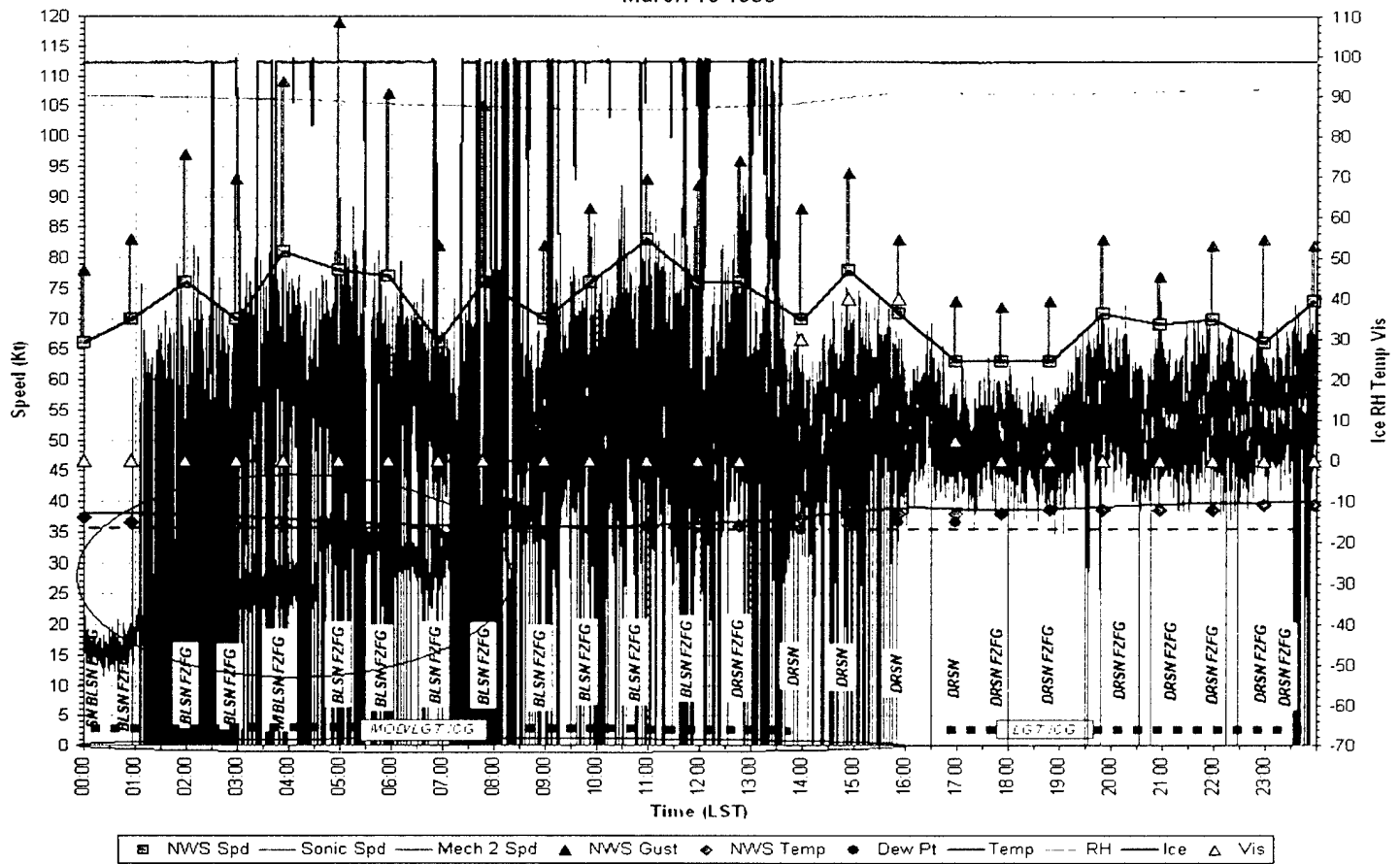
March 15, 1999



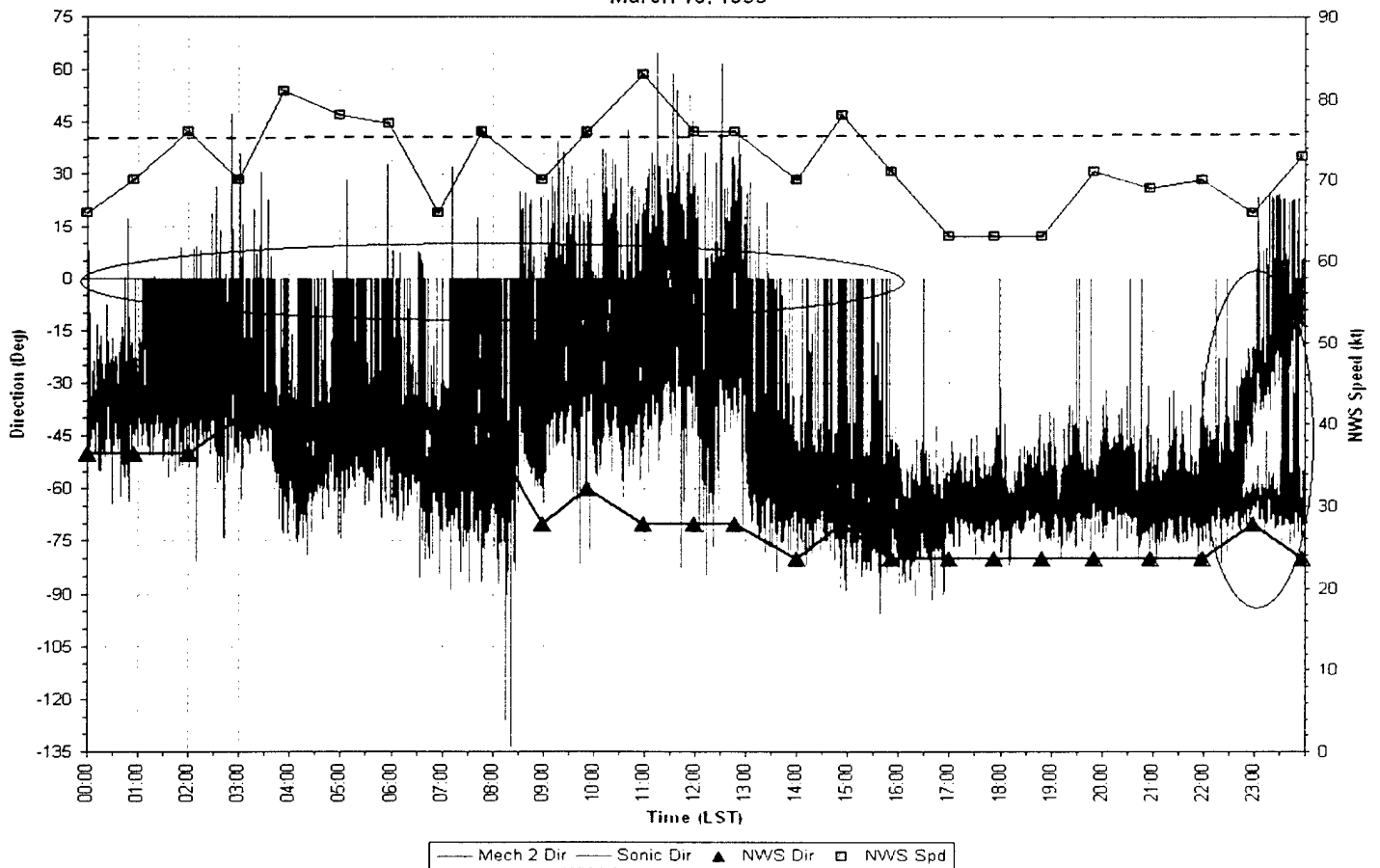
March 15, 1999



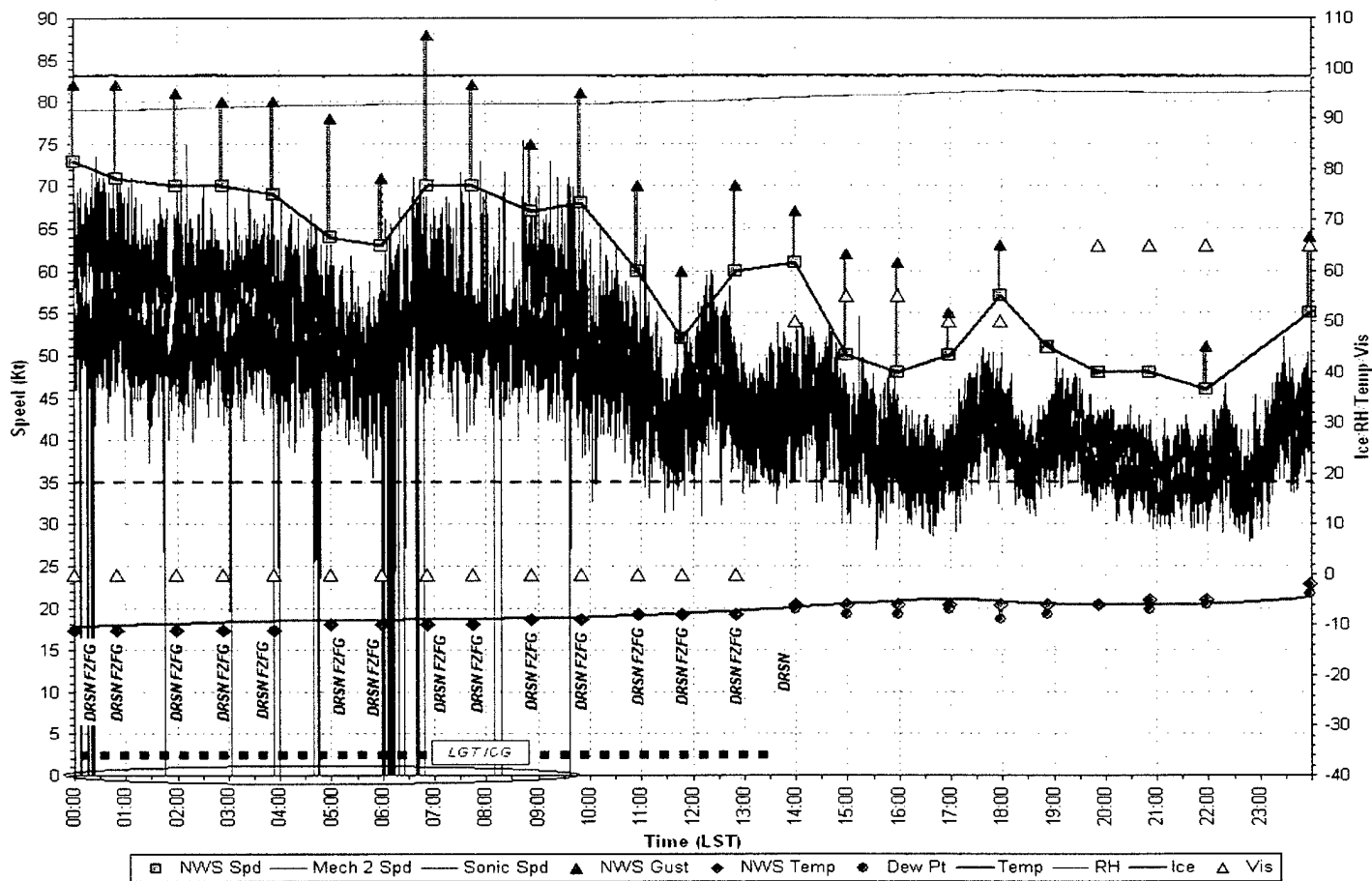
March 16 1999



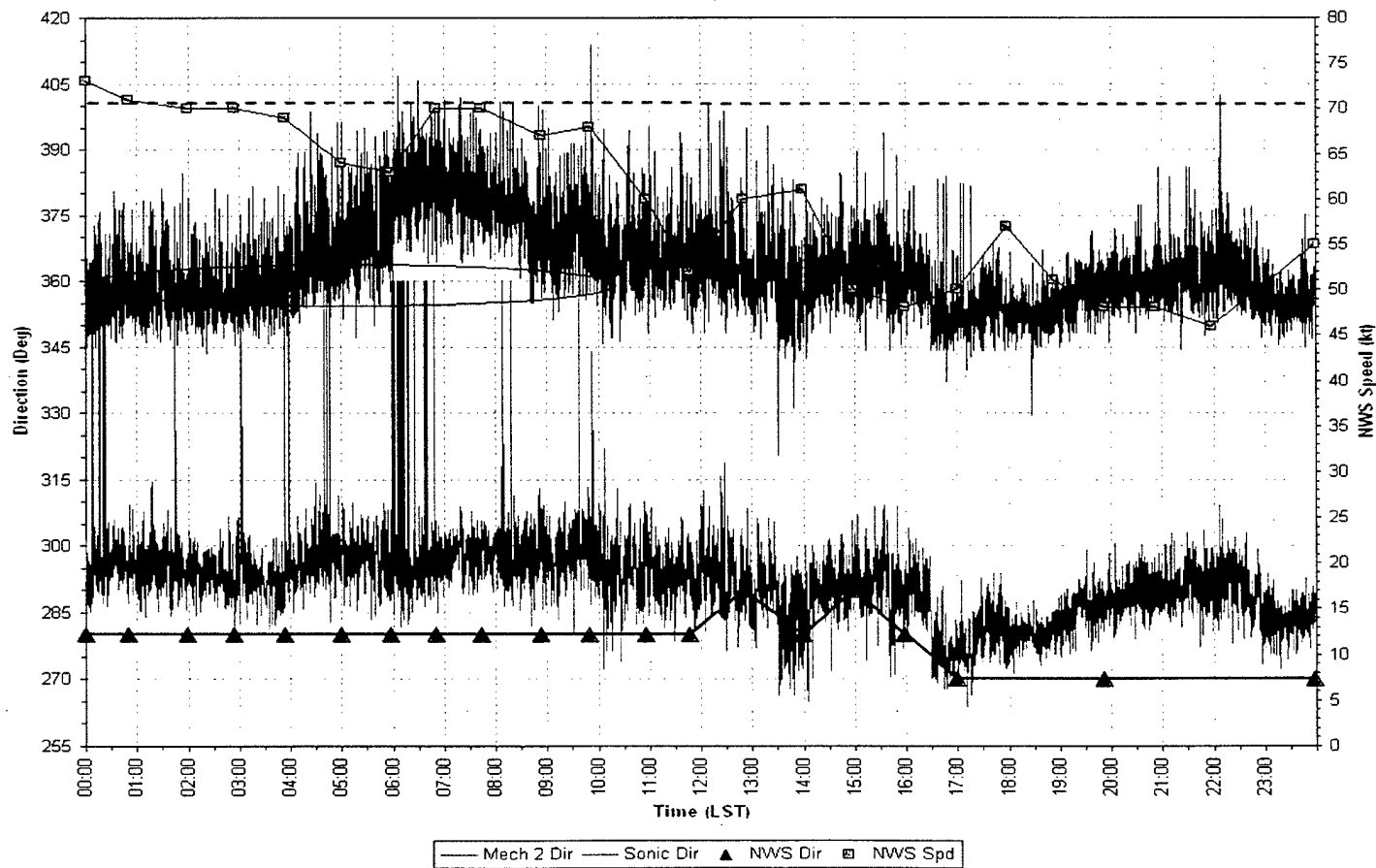
March 16, 1999



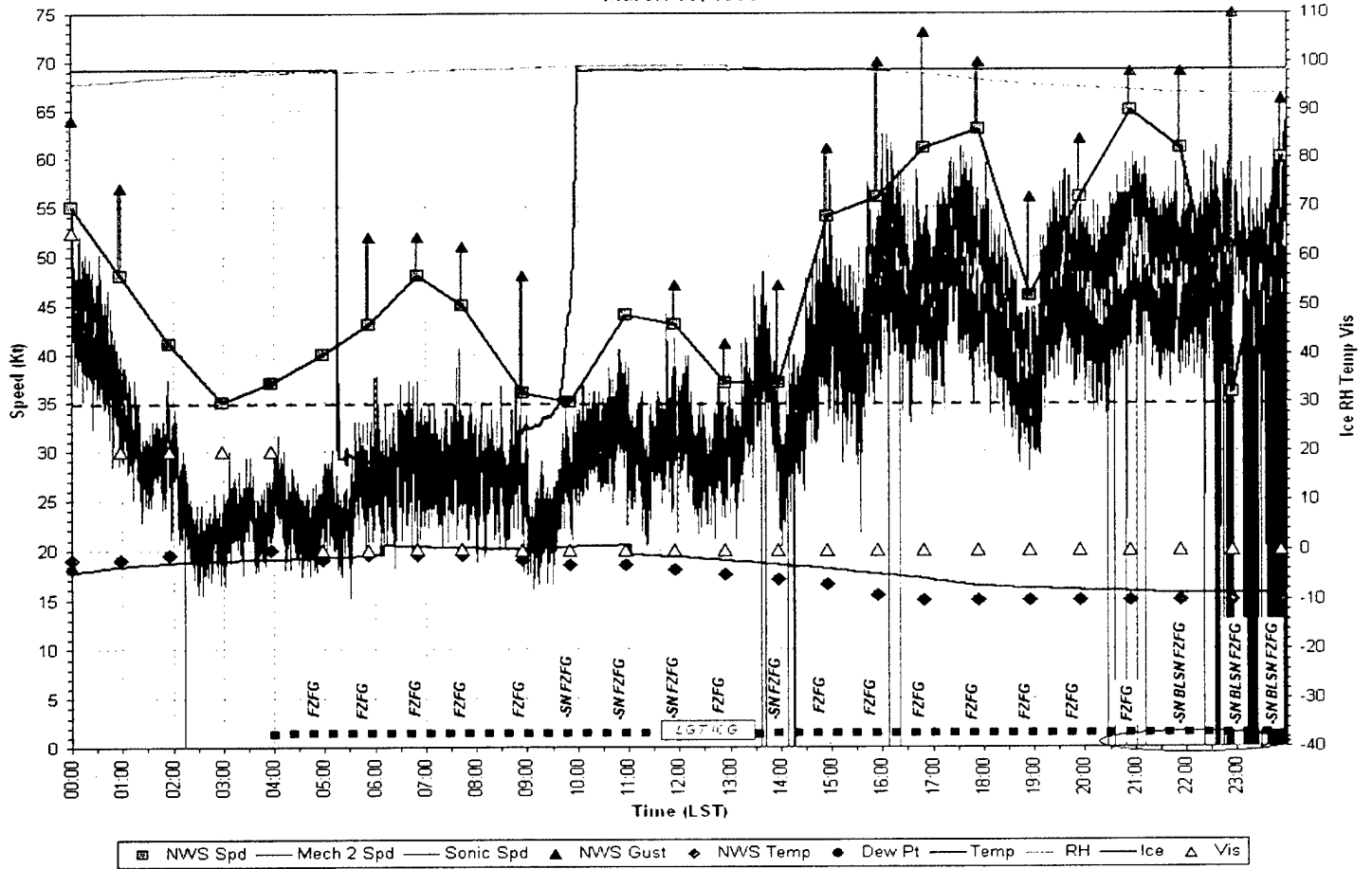
March 17, 1999



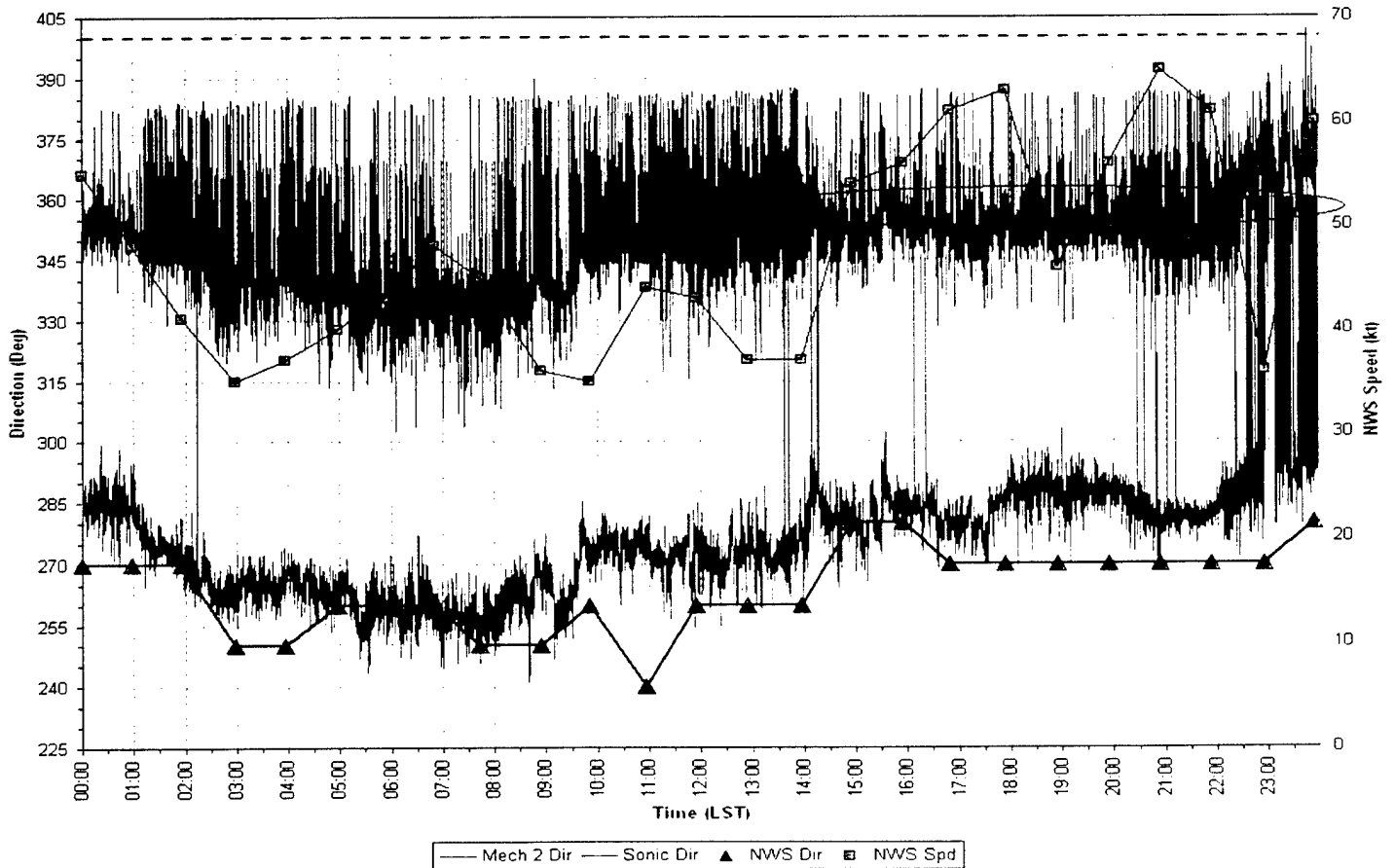
March 17, 1999



March 18, 1999

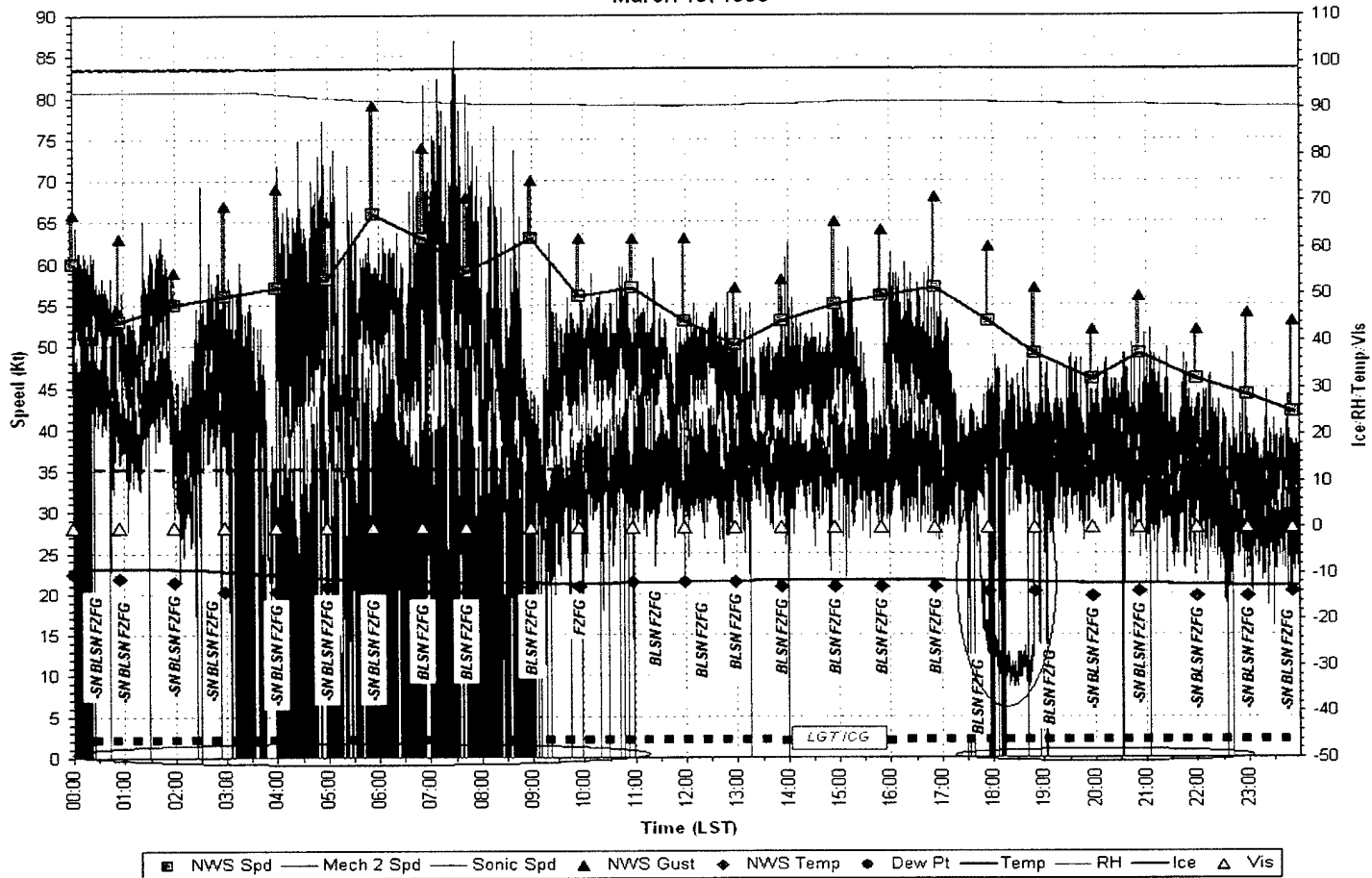


March 18, 1999

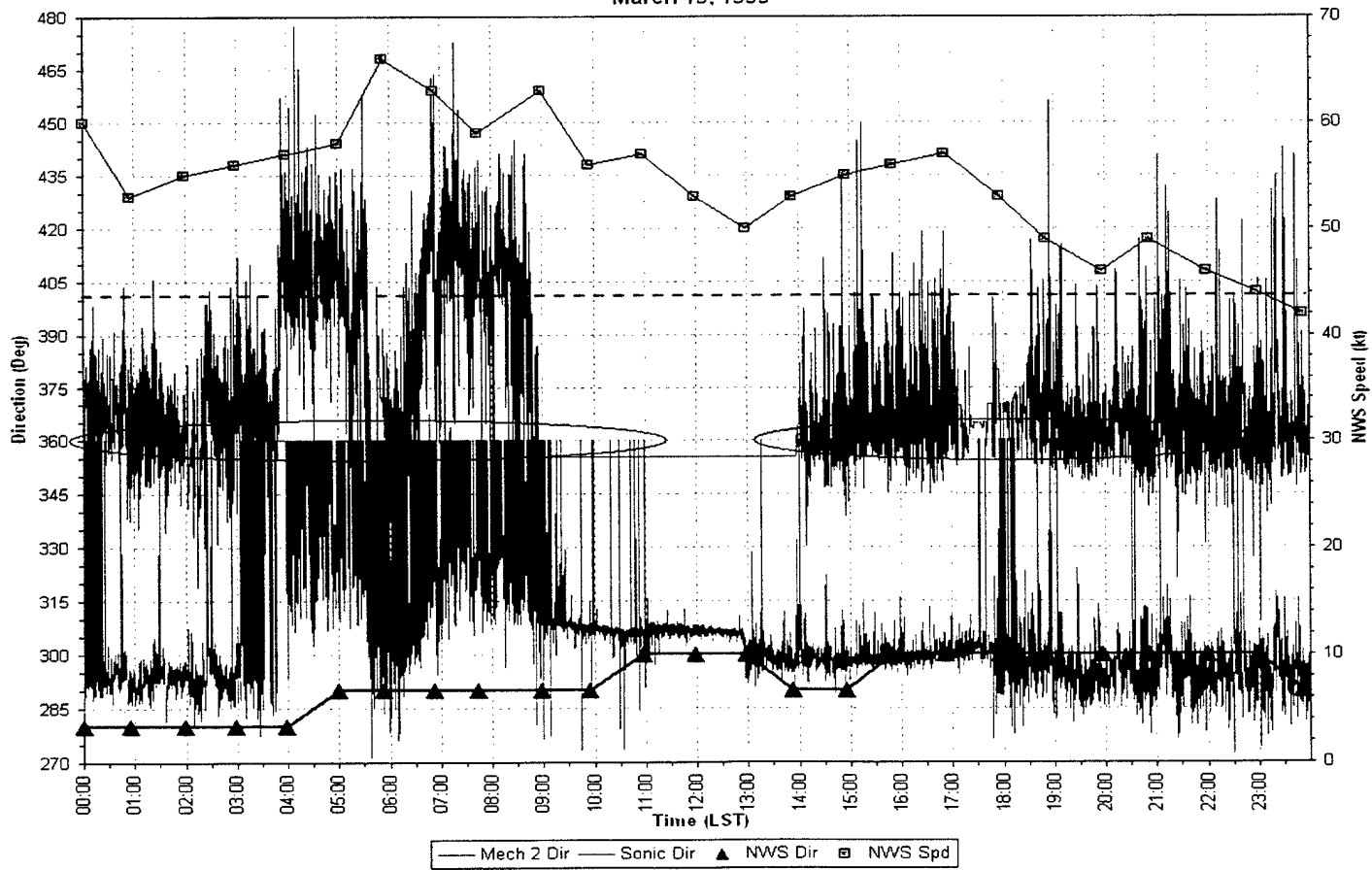




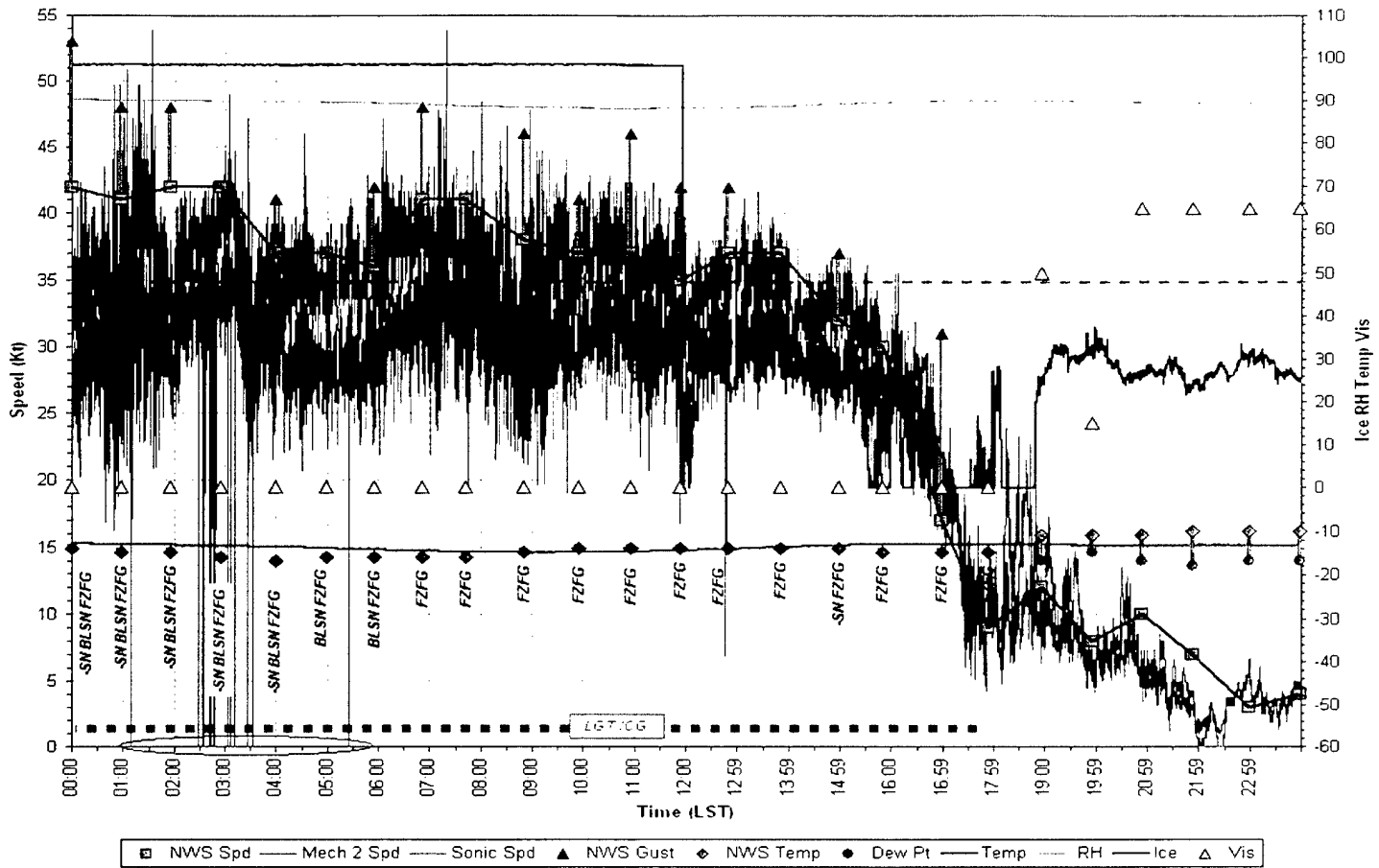
**March 19, 1999**



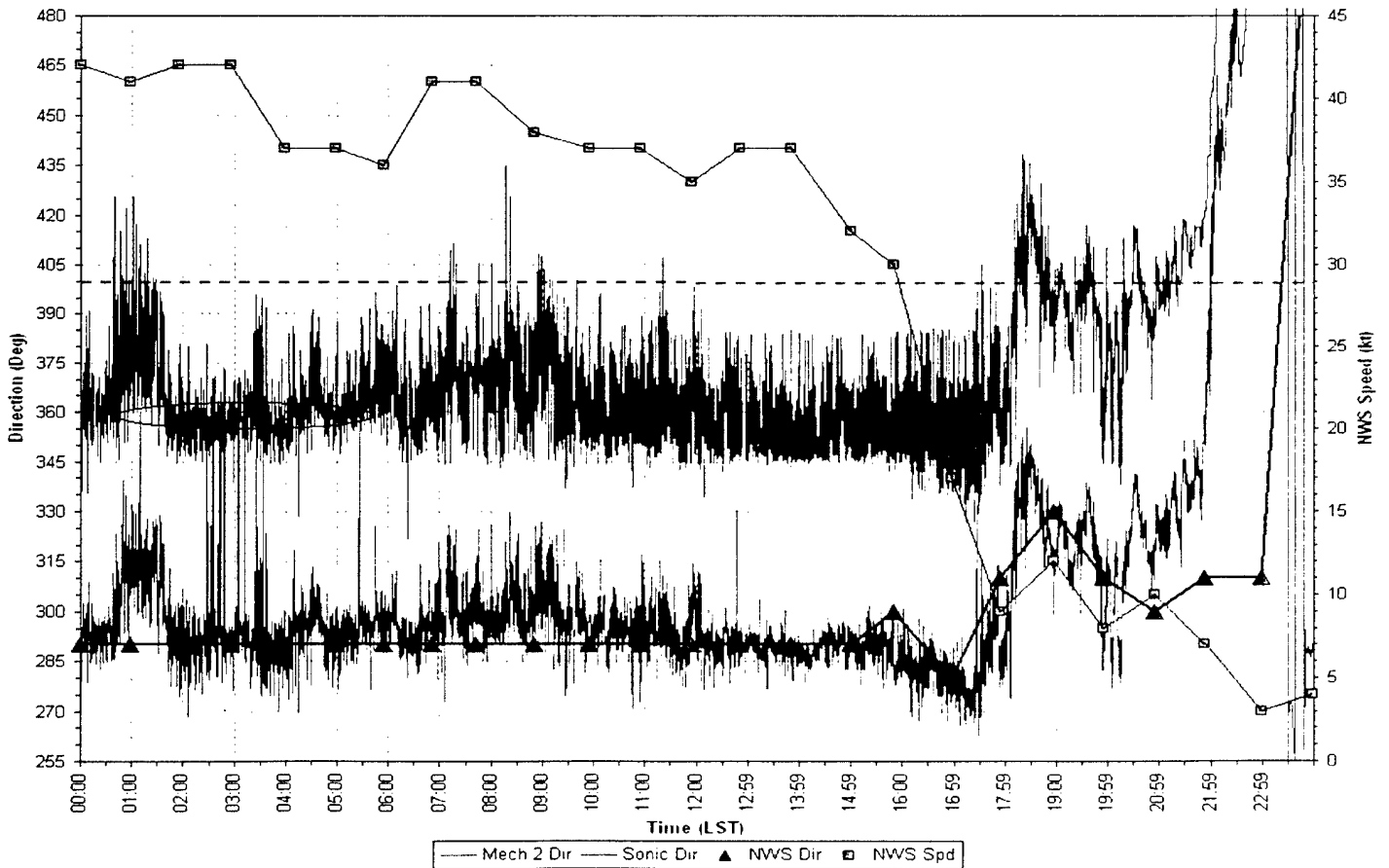
**March 19, 1999**



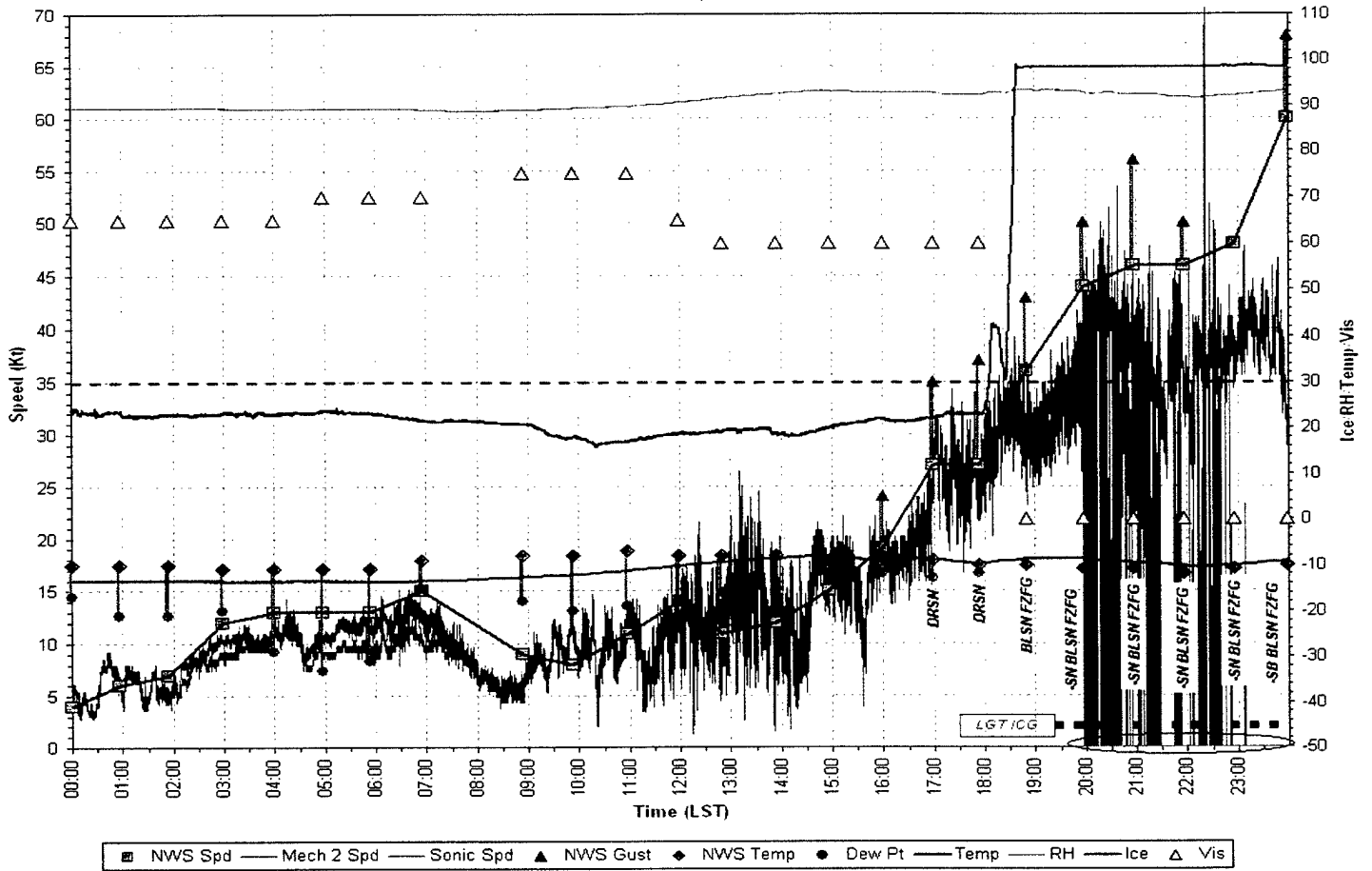
March 20, 1999



March 20, 1999



March 21, 1999



March 21, 1999

